

THE  
American Journal of Education.

No. V.—JULY, 1856.

I. THE AMERICAN INSTITUTE OF INSTRUCTION.

We should be doing injustice to our own appreciation of the important services rendered to American Education in all its departments, by the American Institute of Instruction, through the Lectures and Discussions of its Annual Meetings for the last quarter of a century, and by its contributions to the educational literature of the English language in its twenty-six published volumes, if we did not seize the earliest opportunity to record its origin and history, and spread before our readers some evidence of its usefulness in the wide range of topics ably presented at its annual meetings, and embodied in a permanent form in the printed volumes of its proceedings.

Although, not the earliest\* formed, the American Institute of Instruction, so far as we have any means of judging, is the oldest existing educational association in this country. With its present object and constitution, it originated in a Convention of Teachers and other friends of education, to the number of over two hundred, held at Columbian Hall, in Boston, on the 15th, 16th, 17th, and 18th of March, 1830; and, with a committee appointed by that meeting, on the 18th, "to digest a plan, and prepare a constitution for a permanent association of persons engaged or interested in the work of instruction." This meeting may have been suggested immediately by the gatherings for lectures and discussions under the general name of Lyceums, which were started by Josiah Holbrook, in 1826; but, the convention, and the resolution for a permanent and more general organization, in all probability, grew out of, and formed part of, a wide-spread movement or revival of interest and exertion in behalf of common schools and other institutions and agencies of popular improvement, which began to manifest itself as far back as the beginning of the present century, and which can be more distinctly traced in the action of public bodies, and in printed documents from 1818, until 1830, when it had reached a large number of teachers and public spirited individuals, in different parts of the country.

\* The earliest Educational Association in this country, was formed at Middletown, Conn., in 1799, under the name of the "Middlesex County Association for the Improvement of Common Schools." See *Barnard's History of Education in Connecticut, from 1636 to 1833.*

The indications of this movement or "revival of education," as it has been called, may be traced in

The discussions in the public press, legislative halls, and city councils, which attended the establishment or improved organization and administration of public schools in many of the principal cities and large towns,<sup>1</sup> viz.: In New York, in 1806, by the opening of a free school for poor children, and the subsequent action of the Free (afterwards called the Public) School Society; in Philadelphia 1818, Lancaster in 1821, and Pittsburg in 1828; in Boston,<sup>2</sup> by the institution of Primary Schools in 1818, of English High School in 1821, and of a High School for girls in 1825; in Worcester in 1825, in Lowell in 1827, in Portland in 1822, and Bath in 1828, in Providence in 1828, in Hartford in 1826, in Cincinnati in 1828, &c.

The establishment of the School Fund in Connecticut, and the proposition<sup>4</sup> to endow Common Schools out of the avails of the public lands belonging to the United States, and the presentation<sup>5</sup> of this subject in some of its aspects, to the legislatures of several States, by the Governor or school officer:<sup>6</sup>

The establishment, or revision of the common or public school system in a majority of the States, viz.: in Kentucky, in 1821 and 1828; in Maine, in 1821; in Alabama, in 1823; in Maryland, Missouri, and Ohio, in 1825; in Connecticut, New Hampshire, Massachusetts, Vermont, Rhode Island, New York, Virginia, Delaware, and South Carolina, in 1827 or 1828:

(1.) THE REVIVAL OF EDUCATION. An Address to the Normal Association, Bridgewater, Mass., Aug. 8, 1855. By Rev. Samuel J. May, Syracuse, N. Y. Syracuse, J. G. R. Trubner, 1855. p. 40. In this Address the Author, who was an active and influential participant in the Educational Revival of Connecticut and Massachusetts from 1829 to 1845, and was Principal of the State Normal School at Lexington, in 1843, has presented a rapid and interesting sketch of the principal agents, and incidents of the great reform and improvement of the System of Common Schools and other means of Popular Education in New England.

(2.) The Progress and Condition of Educational Improvement in the principal cities of the United States—where our American System of Public Instruction has received its fullest development, will be presented in a subsequent number of this Journal.

(3.) The establishment of Primary Schools as part of the system of Public Schools in Boston in 1818, through the exertions of Elihu Ticknor and others, and subsequently of the English High School for boys who did not intend to go through College, and of a High School for girls; (afterwards merged in an extension of the course of instruction for girls in the Grammar Schools,) in 1825, are among the most important events in the history of public instruction in this country.

(4.) The project presented in 1821, by a Committee of the Senate of Maryland, of which Virgil Marcy was Chairman, for distributing a portion of the avails of the sales of the Public Lands to the several States, for educational purposes, with the action of several of the State Legislatures, on the same, attracted the attention of public men everywhere to the condition and improvement of the common schools.

(5.) The messages of Gov. Clinton, of New York, of Gov. Lincoln, of Mass., of Gov. Butler, of Vermont, of Gov. Lincoln, of Maine, and of the governors of other states, between the years, 1826 and 1830, to their respective Legislatures, copied as they were widely and commented on, in the newspapers of the country, popularized the idea of the necessity of school improvement.

(6.) The appointment of a Superintendent of Common Schools in the State of New York, in 1812, and the annual reports of that officer, and especially of Asariah C. Flagg, John A. Dix, and John C. Spencer, exerted a powerful influence in inducing other states to recognize the common or public schools as a part of their leading policy.



The almost simultaneous publication in 1824-25, by Thomas H. Gallaudet, of Hartford, Conn., James G. Carter,<sup>10</sup> of Lancaster, Mass., and Walter R. Johnson, of Germantown, Penn., in newspapers and in pamphlets, of their views on the improvement of public schools and education generally, by an institution for the professional training of teachers:<sup>11</sup>

The establishment of the American Journal of Education,<sup>12</sup> in January, 1826, and its monthly issue afterward of able discussions and current intelligence respecting schools and education until merged in the American Annals of Education in 1830:

The experiments in infant, monitorial, and manual-labor schools:

The improvement of text-books, and particularly the publication of Colburn's First Lessons:

The establishment and multiplication of seminaries for the education of girls:<sup>13</sup>

The proposition, in 1825, for the establishment of independent schools of practical science, or extension of our plans of collegiate instruction,<sup>14</sup> so as to admit of more attention to the sciences and especially as applied to the useful arts:

The formation of Mechanic Institutions, in 1821, and the Lyceum<sup>15</sup> with its popular lectures, cabinets of specimens of natural history, classes for debates and mutual instruction, in 1826:

The conventions, town, county, and state, held in behalf of common schools in Connecticut, and other parts of New England, from 1826 to

(7.) An History of the Legislation of the several States respecting Common or Public Schools, with an outline of the System of operation in 1856, in each state, will be published in No. 7 or 8, of this Journal.

(8.) The earliest suggestion of institutions, where teachers of common schools could be qualified, was made by Elisha Ticknor, in 1788, in the Massachusetts Magazine, and the first proposition for a distinct academy or institution for this purpose, by Denison Olmsted, now Professor in Yale College at New Haven, in 1817.

(9.) We shall publish a biographical sketch of Warren Colburn, in the next number of this Journal.

(10.) The services of James B. Carter, from 1822 to 1837, in behalf of the professional education of teachers, the improvement of text-books, and the more vigorous administration of public schools, are strangely overlooked. We have collected the material for a sketch of his educational labors.

(11.) We shall present a sketch of the labors of William Russell, William C. Woodbridge, and William A. Alcott—in acknowledgment of the debt of gratitude due to them for their services to the cause, especially as the editors of the first periodical devoted to the advancement of education in the English language.

(12.) In connection with a biography of Josiah Holbrook, we shall give a history of the Lyceum, and Popular Scientific Lectures.

(13.) The general development of the American College System, and its sudden expansion from about the year 1825, will be shown in the "History and Condition of Colleges in the United States," which we propose to give soon in one or two numbers of the Journal, for convenience of comparison and reference.

(14.) The establishment of the Rensselaer Institute at Troy, and of the University at Virginia, are important events in the history of American Education.

(15.) The labors of Mrs. Emma Willard, at Troy, of Rev. Joseph Emerson, at Wethersfield, of Miss Beecher, at Hartford, of Miss Grant, at Ipswich, of Miss Lyon, at South Hadley, as well as the earlier labors of Miss Pierce, at Litchfield, and Rev. Mr. Herrick, at New Haven, will not be forgotten.

1830, and especially the formation of the Society for the improvement of common schools at Hartford, in 1827, and of the Pennsylvania Society for the promotion of public schools in 1828:

In these and other ways, this movement in behalf of the more general, the rough, and complete education of the people, had given indications of the earnest and well-directed labors of many persons, acting in widely separated and isolated spheres, and ready for mutual counsel and cooperation as soon as any plan of association should be proposed.

One movement\* toward such an organization, although it did not attain to any formal shape, publicly recognized, yet contributed to prepare the way for the formation of the American Institute of Instruction, was the action of a society, embracing nearly fifty prominent active friends of education, in the professions, in practical life, and in the occupation of teaching.

"The society here referred to was formed in consequence of invitations issued by Mr. Thomas B. Wait,† publisher of the *Journal of Education*, to a meeting held, in the autumn of 1826, at the study of Professor George Ticknor, of Boston. At this meeting, the subject was fully discussed, and a hearty pledge of cooperation mutually given; and, Professor Ticknor was appointed chairman of a committee to prepare a statement‡ of the plan and purposes of the proposed association. This statement was inserted in the *American Journal of Education*, Vol. I, p. 485.

"The society thus originated, contemplated an extensive scope of operation in the whole field of education. At weekly meetings, held for successive months, the business proposed was fully and thoroughly discussed; plans were matured for the assignment of the prominent branches and stages of education to special committees, and for an extensive investigation into the actual condition of schools and other seminaries, with full reports on the same; and, the *Journal of Education* was adopted as the channel of communication for such purposes. But, one step remained to be taken for the commencement of active measures, and the public announcement of the formation and design of the associa-

\* The following statement is made on the authority of Prof. William Russell, at that time editor of the *American Journal of Education*, and teacher of Elocution and English Literature in Boston.

† Mr. Thomas B. Wait, of Boston, a practical printer and publisher, projected the publication of the *American Journal of Education* in the fall of 1825. He became deeply interested in the subject of education, during his residence in Portland, Maine, by the movements there made for the introduction of a graded system of public schools for that city. The first Number of the *Journal* was issued in the 1st of January, 1825.

‡ The statement referred to, was published in Vol. I, of the *American Journal of Education*, p. 485, and presents in a clear and forcible manner the reasons for a combined and concentrated effort of men eminent and active in literature, science, and public life, for the advancement of education. Among the objects proposed for immediate attention, are:

1. Discussion of Domestic Education, and the establishment of Infant Schools.
2. The professional education and improvement of teachers.
3. The collecting of a Library of useful books on Education.
4. The Improvement of School Books.
5. Making and bringing together observations on schools of different grades in different localities.
6. Central and associated Committees.

tion. This step was the appointment of a person to act as representative and agent of the society in the business of visiting schools, reporting on their condition, and making such suggestions as, in the circumstances, might seem desirable, in the opinion of the several committees, acting in concert with the agent. The person to whom the agency was proposed, having declined, on the ground of double occupation already incurred, in the daily duties of teaching and editing, the members of the society were unable to unite upon one on whose fitness for the office all could agree; and, as the agency proposed seemed to sum up the whole useful action proposed by the association, it was deemed preferable to dissolve it, rather than to incur the risk of issuing statements or proposals, through an authorized agent, which might be at variance with the opinions or the convictions of individual members. A dissolution accordingly took place. But, the many important facts and interesting discussions which had been brought out at the preliminary meetings of the embryo association, had made so deep an impression on the minds of several of the individuals concerned in the undertaking proposed, that these same persons took a prominent part in originating another association, designed for similar purposes to those of the former, and planted on a wider and securer ground plan. The new society was the American Institute of Instruction, which has since rendered so effectual service to the advancement of education, by its annual meetings and instructive lectures, and whose designation so happily foreshadows the recognition of the teacher's occupation as a liberal profession."

The meeting or convention which assembled in Columbian Hall, Boston, on the 15th of March, 1830, was called and held under the auspices of gentlemen actively engaged in the Lyceum movement.

The call was issued in the name of the "State Committee of Lyceums," and the objects as set forth in an editorial notice widely copied in the New England papers, was "to receive reports on the progress of lyceums and the condition of common schools, and to acquire information as to the organization of infant schools, and the use of school and cheap scientific apparatus." The meeting was called to order by Josiah Holbrook, who stated the objects, among which was, "to acquire information on subjects connected with the office and duty of teachers." The meeting was organized by the appointment of Rev. J. Going, of Worcester, Chairman, and Rev. E. K. Newton, of Marlborough, and J. Wilder, of Watertown, as clerks, and a Committee of arrangements, of which Josiah Holbrook was chairman. Committees were appointed on school apparatus; on qualification of teachers; on school books; on infant school system; on meritorious schools, and on the appropriate branches of a system of popular education.

A portion of each day was devoted to visiting the public schools and humane institutions of Boston; to statements respecting the condition of schools, compensation of teachers, text books used in the different New England States; to an exhibition of the practical uses of Holbrook's school and lyceum apparatus; to discussions of the best mode of raising

the qualifications, compensation and social position of the teacher; as to the best mode of securing a uniformity of better text-books; to lectures on physical education; to an exposition of the infant school system and its incorporation into country district schools; to the advantages of employing monitors in the discipline and instruction of large schools; to the usefulness of county and town conventions of teachers; and to associations of teachers as branches of lyceums.

At the session held on the 18th, it having been voted "that it was expedient to form a permanent association of persons engaged and interested in the business of instruction," Messrs. Ebenezer Bailey, Benjamin D. Emerson, Abraham Andrews, George B. Emerson, and Gideon F. Thayer, of Boston, Henry K. Oliver, of Salem, and J. Wilder, of Watertown, were appointed a committee "to digest a plan, and prepare a constitution, for the proposed association," with instructions "to call a meeting for organization, when they should deem it expedient." This committee accordingly met at the house of the chairman, on the 17th of April, resolved to provide for a course of lectures at another meeting of teachers, to which the constitution should be reported. President Wayland, of Brown University, was chosen to deliver the Introductory Discourse, and important subjects were assigned to gentlemen eminent as teachers, or in professions, who had given to the subject, special attention; and Messrs. Ebenezer Bailey, and George B. Emerson, were appointed a sub-committee to supply any deficiency in the choice of lecturers, to fill vacancies, and to add such others as they might consider necessary, and to fill vacancies. Messrs. Andrews, Thayer, and Wilder were appointed a sub-committee to furnish materials for a constitution, and report at the next meeting. The next meeting of the committee was held on the 8th of May, and continued by adjournment at short intervals till July 3d, at which time, the draft of a constitution prepared mainly by Mr. Bailey, was accepted, and Messrs. Bailey, G. B. Emerson, and B. D. Emerson, were appointed a committee of arrangements for the first annual meeting of the proposed association, to be held on the 19th of August, of which, the following notice had already been given in the newspapers.

#### NOTICE TO TEACHERS.

At a convention, consisting of nearly three hundred teachers and other friends of popular education, from the several Eastern States, which was held in the city of Boston, March 18th, a vote was passed, recommending that a *general association* of persons, engaged and interested in the business of instruction, be formed; and Messrs. E. Bailey, B. D. Emerson, A. Andrews, G. B. Emerson, and G. F. Thayer, of Boston, H. K. Oliver, of Salem, and J. Wilder, of Watertown, were appointed a committee, to make the necessary arrangements, and prepare a constitution; with instructions to call a meeting for the purpose of organizing the association, at such time and place as they should think expedient.

The committee have attended to the duty assigned to them, and hereby give notice that the proposed convention will meet at the State House, in the city of Boston, on Thursday, August 19th, at 8 o'clock, A. M., the House of Representatives having liberally granted the use of their hall for the occasion. All teachers, either of common schools or in institutions of a higher order, and all gentlemen who have ever been engaged in the business of teaching, and who still take an interest in the subject of education, are respectfully invited to attend the meeting, and become members of the association, in whatever part of the country they may reside.

It is expected that the annual exhibition of the public schools for boys, in Boston, will take place the day before that designated for the meeting of the convention; and the Commencement at Harvard University will be on Wednesday of the following week. As those gentlemen who may come from a distance will probably wish to be present at both of these literary

anniversaries, the committee have thought that the intermediate time may be both pleasantly and profitably occupied by a series of plain and practical lectures, on important subjects connected with education; and, they have the satisfaction of announcing the following arrangements for this purpose. As many lectures will be delivered daily as may be necessary to complete the course in the time specified above.

The public Introductory Address will be delivered by the Rev. Dr. Wayland, President of Brown University, Providence, R. I.

Lectures on the following subjects will be given in such order, and at such times during the week, as the convenience of the several lecturers may require.

On Physical Education. By John C. Warren, M. D., of Boston.

On the construction and furnishing of school-houses, and on school-apparatus. By Mr. William J. Adams, of New York.

On school discipline. By Rev. Samuel R. Hall, of Concord, Vermont.

On the infant school system of education, and the extent to which it may be profitably applied to all primary schools. By Mr. William Russell, late editor of the Journal of Education, of Milton, Mass.

On the advantages and defects of Monitorial instruction, and the expediency of introducing this method of teaching into common schools and academies. By Mr. H. K. Oliver, of Salem, Mass.

On the spelling of words, and a rational method of teaching their meaning. By Mr. G. F. Thayer, of Boston.

On Elocution, with a particular reference to the teaching of reading. By Rev. John Pierpont, of Boston.

On a practical method of teaching Rhetoric. By Professor Newman, of Bowdoin College, Maine.

On English Grammar. By Mr. E. Bailey, of Boston.

On teaching Geography. By James G. Carter, Esq., of Lancaster, Mass.

On teaching Arithmetic. By Warren Colburn, Esq., of Lowell, Mass.

On Geometry and Algebra, as important branches of education, with the manner of teaching them. By Mr. Francis J. Grund, of Boston.

On Linear Drawing, connected with Penmanship, as an elementary branch of education. By Mr. Walter R. Johnson, of Philadelphia.

On the culture and development of the several faculties of the human mind, in their proper order and degree. By Mr. G. B. Emerson, of Boston.

On Lyceums and Societies for the diffusion of useful knowledge. By Mr. N. Cleveland, of Newbury, Mass.

On the study of the learned languages, as a means of improving the intellectual powers, and fitting the mind for other pursuits. By Mr. C. C. Felton, of Cambridge, Mass.

Although it is not expected that ladies will become members of the association, all such as are actually engaged in teaching, are respectfully invited to attend the lectures.

By order of the Committee.

E. BAILEY Chairman.

GEORGE B. EMERSON, Corresponding Secretary.

Boston, June 10, 1830.

The convention met on the 19th of August, 1830, at the State House, in the Hall of the House of Representatives, at Boston. It was composed of over two hundred persons, most of them actual teachers, from fifteen different States of the Union. It was organized by the choice of William B. Calhoun, of Springfield, as Chairman, and George B. Emerson and Dr. J. W. M'Kean, of Boston, as Secretaries. The Introductory Discourse was delivered by Rev. Francis Wayland, President of Brown University, "*On the Object of Intellectual Education, and the manner in which that object is to be attained.*" The speaker opened and closed with these prophetic and pregnant sentences in reference to the occasion.

"In the long train of her joyous anniversaries, New England has yet beheld no one more illustrious than this. We have assembled to-day, not to proclaim how well our fathers have done, but to inquire how we may enable their sons to do better. We meet, not for the purposes of empty pageant, nor yet of national rejoicing; but, to deliberate upon the most successful means for cultivating, to its highest perfection, that invaluable amount of intellect which Divine Providence has committed to our hands. We have come up here to the city of the Pilgrims, to ask how we may render their children most worthy of their ancestors and most pleasing to their God. We meet to give to each other the right hand of fellowship in carrying forward this all-important work, and here to leave our professional pledge, that, if the succeeding generation do not act worthily, the guilt shall not rest upon those who are now the instructors of New England.

Well am I aware that the occasion is worthy of the choicest effort of the high-

est talent in the land. Sincerely do I wish, that upon such talent the duty of addressing you this day had devolved. Much do I regret that sudden indisposition has deprived me of the time which had been set apart to meet the demands of the present occasion, and that I am only able to offer for your consideration such reflections as have been snatched from the most contracted leisure, and gleaned amid the hurried hours of languid convalescence. But, I bring, as an offering to the cause of Education, a mind deeply penetrated with a conviction of its surpassing importance, and enthusiastically ardent in anticipating the glory of its ultimate results. I know, then, that I may liberally presume upon your candor, while I rise to address those to many of whom it were far more becoming that I quietly and humbly listened."

"To the members of this Convention, allow me to say, Gentlemen, you have chosen a noble profession. What, though it do not confer upon us wealth?—it confers upon us a higher boon, the privilege of being useful. What, though it lead not to the falsely-named *heights* of political eminence?—it leads us to what is far better, the sources of real power; for it renders intellectual ability necessary to our success. I do verily believe that nothing so cultivates the powers of a man's own mind as thorough, generous, liberal, and indefatigable teaching. But our profession has rewards, rich rewards, peculiar to itself. What can be more delightful to a philanthropic mind than to behold intellectual power increased a hundred fold by our exertions, talent developed by our assiduity, passions eradicated by our counsel, and a multitude of men pouring abroad over society the lustre of a virtuous example, and becoming meet to be inheritors with the saints in light—and all in consequence of the direction which we have given to them in youth? I ask again, what profession has any higher reward?"

Again, we, at this day, are, in a manner, the pioneers in this work in this country. Education, as a science, has scarcely yet been naturalized among us. Radical improvement in the means of education is an idea that seems but just to have entered into men's minds. It becomes us to act worthily of our station. Let us, by all the means in our power, second the efforts and wishes of the public. Let us see that the first steps in this course are taken wisely. This country ought to be the best educated on the face of the earth. By the blessing of Heaven, we can do much toward the making of it so. God helping us, then, let us make our mark on the rising generation."

The draft of a Constitution was reported by the Chairman of the Committee appointed at the meeting held in March, which, after a prolonged discussion of the several articles, and, after a few alterations, was unanimously adopted as the—

#### CONSTITUTION OF THE AMERICAN INSTITUTE OF INSTRUCTION.

*Preamble.*—We, whose names are hereunto subjoined, pledging our zealous efforts to promote the cause of popular education, agree to adopt the following Constitution, and to obey the By-Laws made in conformity thereto.

*Article I.—Name and Object.*—The Society shall be known by the title of the **AMERICAN INSTITUTE OF INSTRUCTION**. Its object shall be the diffusion of useful knowledge in regard to education.

*Article II.—Members.*—1. Any gentleman of good moral character, interested in the subject of education, may become a member of this Institute, by signing this Constitution, and paying, at the time of his admission, a fee of one dollar.

2. An annual assessment of one dollar shall be laid upon each member; by neglecting to pay which for more than one year after due notice from the Treasurer, he shall cease to be a member of the society.

3. Any gentleman, by paying at one time the sum of twenty dollars, shall become a member of the Institute for life, and be exempted from all future assessments.

4. Honorary members may be elected by the Institute, at the recommendation of two-thirds of the Directors present at any stated meeting of that Board.

5. For dishonourable or immoral conduct, a member may be dismissed from the society, by a vote of two-thirds of the members present, at any regular meeting.

6. Ladies, engaged in the business of instruction, shall be invited to hear the annual address, lectures, and reports of committees on subjects of education.

*Article III.—Meetings.*—1. The annual meeting of the Institute shall be held at Boston, on the Thursday next preceding the last Wednesday in August, at such place and hour as the Board of Directors shall order.

2. Special meetings may be called by the Directors.

3. Due notice of the meetings of the society shall be given in the public journals.

*Article IV.—Officers.*—1. The officers of the society shall be a President, Vice-Presidents, a Recording Secretary, two Corresponding Secretaries, a Treasurer, three Curators, three Censors, and twelve Counselors, who shall constitute a Board of Directors.



2. The officers shall be elected annually, in August, by ballot.

*Article V.—Duties of Officers.*—1. The President, or, in his absence, one of the Vice-Presidents, or, in their absence, a President *pro tempore*, shall preside at the meetings of the Institute.

2. The Recording Secretary shall notify all meetings of the society, and of the Board of Directors; and he shall keep a record of their transactions.

3. The Corresponding Secretaries, subject to the order of the Board of Directors, shall be the organs of communication with other societies, and with individuals.

4. The Treasurer shall collect and receive all moneys of the Institute, and shall render an accurate statement of all his receipts and payments, annually, and whenever called upon by the Board of Directors; to whom, he shall give such bonds for the faithful performance of his duty as they shall require. He shall make no payment, except by their order.

5. To the Board of Directors shall be entrusted the general interests of the society, with authority to devise and carry into execution such measures as may promote its objects. It shall be their duty to appoint some suitable person to deliver an address before the Institute, at their annual meeting; to select competent persons to serve on Standing Committees, or to deliver lectures on such subjects relating to education as they may deem expedient and useful; to collect such facts as may promote the general objects of the society; and to provide convenient accommodations for the meetings. They shall, at the annual meeting, exhibit their records, and report to the Institute.

They shall have power to fill all vacancies in their Board from members of the society, and make By-Laws for its government.

6. It shall be the particular duty of the Curators to select books, and to take charge of the Library of the Institute.

7. The Censors shall have authority to procure for publication the annual address and lectures. It shall be their duty to examine the annual reports of the Standing Committees, and all other communications made to the society; and, to publish such of them as, in their estimation, may tend to throw light on the subject of education, and aid the faithful instructor in the discharge of his duty.

8. It shall be the duty of the President, the Vice-Presidents, and Counselors, severally, to recommend to the consideration of the Board of Directors, such subjects of inquiry, as, in their opinion, may best advance the great objects of the Institute.

9. Stated meetings of the Board of Directors shall be held at Boston, on the first Wednesday in January; on the last Wednesday in May; and, on the day next preceding that of the annual meeting of the Institute in August.

*Article VI.—By-Laws and Amendments.*—1. By-Laws, not repugnant to this Constitution, may be adopted at any regular meeting.

2. This Constitution may be altered or amended by a vote of two-thirds of the members present at the annual meeting, provided two-thirds of the Directors, present at a stated meeting, shall agree to recommend the proposed alteration or amendment.

The Committee had proposed to call the society *The New England Association of Teachers*; but, as several of the Middle, Southern, and Western States, were represented in the Convention, and many persons, not teachers, were desirous of belonging to the society, a more comprehensive name and plan on the motion of the Rev. John Pierpont, was adopted.

The Constitution has been slightly modified from time to time, so as to relieve members of all annual payments, after paying the admission fee of one dollar, and leaving the time and place of the annual meeting, both of the Institute and of the Directors, to be fixed by the Directors.

The Institute was organized, on the 23d of August, by the election of the following board of officers, from 1830 to 1831, whose names it was directed to be published, without titles.

#### OFFICERS OF THE AMERICAN INSTITUTE OF INSTRUCTION FOR THE YEARS 1830-31.

*President.*—Francis Wayland, Jr., President of Brown University, Providence, R. I.

*Vice-Presidents.*—Wm. B. Calhoun, Springfield, Mass.; Wm. Sullivan, Boston, Mass.; John Adams, Andover, Mass.; John Park, Boston, Mass.; Nathan Lord, President of Dartmouth College, Hanover, N. H.; Thos. H. Gallaudet, Hartford, Ct.; Andrew Yates, Chittenango, N. Y.; Theodore Frelinghuysen, Newark, N. J.; Roberts Vaux, Philadelphia, Pa.; Wm. C. Fowler, Middlebury, Vt.; Reuben Haines, Germantown, Pa.; Benjamin O. Peers, Lexington, Ky.; Nathan Guilford, Cincinnati, Ohio.

*Recording Secretary.*—Gideon F. Thayer, Boston, Mass.

*Corresponding Secretaries.*—Solomon P. Miles, Boston, Mass.; Wm. C. Woodbridge, Hartford, Ct.

*Treasurer.*—Benjamin D. Emerson, Boston, Mass.

*Curators.*—Abraham Andrews, Josiah Holbrook, Boston, Mass.; William Russell, Milton, Mass.

*Censors.*—Ebenezer Bailey, Jacob Abbot, George B. Emerson, Boston, Mass.

*Counselors.*—Wm. J. Adams, New York; James G. Carter, Lancaster, Mass.; Joseph Emerson, Wethersfield, Ct.; C. C. Feltou, Cambridge, Mass.; Wm. Forrest, New York, N.Y.; Walter R. Johnson, Philadelphia, Penn.; J. Kingsbury, Providence, R. I.; Samuel P. Newman, Professor in Bowdoin College, Brunswick, Me.; Henry K. Oliver, Salem, Mass.; Asa Rand, Boston, Mass.; O. A. Shaw, Richmond, Va.; Elipha White, John's Island, S. C.

The lectures provided by the Committee of Arrangements were delivered, and followed by animated discussions, and reports were made by gentlemen from various parts of the country of the state of education in their respective vicinities. In view of the high literary and educational character of the lectures, and the attendance generally, the Committee, in the Preface to the First Volume of Proceedings, written by Mr. George B. Emerson, justly remark,—

"Many a teacher, on the first morning of the convention, must have ascended the steps that lead to the Hall of Representatives, and looked out upon the unequalled prospect commanded by this chosen spot in the 'city of the pilgrims,' with a sense of loneliness, and of doubt and misgiving; but when he beheld the numbers that came flocking from near and distant parts, and saw the earnestness with which they were engaged in the good cause, and the ability evinced in conducting the business of the convention, every one must have gone home to his solitary duties, strengthened and cheered by the thought, that strong hands were in the work, and that he was no longer toiling alone.

The formation of the Institute, it is hoped, will do something toward elevating the standard and increasing the efficiency of popular instruction.

It will furnish the means, by the coöperation of its members, of obtaining an exact knowledge of the present condition of the schools, in all parts of the country. It will tend to render universal, so that it shall pervade every district and village, a strong conviction of the paramount national importance of preserving and extending the mass of popular instruction; thus securing the aid of multitudes of fellow laborers in every portion of the country. It will tend to raise the standard of the qualifications of instructors, so that the business of teaching shall not be the last resort of dullness and indolence, but shall be considered, as it was in the days of republican Greece, an occupation worthy of the highest talents and ambition. It will hardly fail to show that education is a science, to be advanced, like every other science, by experiment; whose principles are to be fixed, and its capacities determined, by experiment; which is to be entered upon by men of a philosophical mind, and pursued with a philosophical spirit. It will be likely to bring forward the modes and objects of instruction in foreign nations and ancient times, and their applicability to the state of things among ourselves. It cannot fail to enlist openly, on the side of popular education, the highest intellect and influence in the nation. If it accomplish these, or any of these objects, it will amply reward the labors of all who have acted in its formation. And that it will have this *tendency*, the feelings of the teachers who attended the convention, may be appealed to, in proof. Great numbers of these had come hundreds of miles, some more than five hundred, to be present on this occasion."

In 1831, the society was incorporated by an act of the legislature of Massachusetts, and in 1835, principally through the exertions of James G. Carter, then a member of the Senate, an appropriation of three hundred dollars a year, for five successive years, was made by the same legislature in aid of the objects of the Institute. This grant has been, from time to time, renewed, and has done much to secure the permanence and extend the usefulness of the association.

Year after year, for twenty-six years, the Institute has continued to hold an annual session in one of the principal cities or towns of New England, which has occupied three or four days, and which has been spent in lectures, reports, and discussions on topics of educational interest, in which men eminent in their respective professions, and principally teachers, have taken part. These meetings have been attended annually by hundreds of teachers, school officers, and promoters of educational improvement; and, in the evening sessions, by thousands of parents.

The following TABLE exhibits at a glance the time and place where each Annual Meeting has been held, and the number of lectures which have been delivered at each session, and the number of these which have been published in the annual volume.

Date.	Place.	President.	Lectures.	
			Delivered.	Published.
1830	Boston, Mass., .....	Francis Wayland, .....	18	14
1831	" " .....	Francis Wayland, .....	15	10
1832	" " .....	Francis Wayland, .....	13	8
1833	" " .....	William B. Calhoun, .....	12	11
1834	" " .....	William B. Calhoun, .....	16	12
1835	" " .....	William B. Calhoun, .....	18	14
1836	" " .....	William B. Calhoun, .....	8	8
1837	Worcester, Mass., .....	William B. Calhoun, .....	17	11
1838	Lowell, Mass., .....	William B. Calhoun, .....	15	8
1839	Springfield, Mass., .....	William B. Calhoun, .....	12	10
1840	Providence, R. I., .....	James G. Carter, .....	14	7
1841	Boston, Mass., .....	George B. Emerson, .....	12	8
1842	New Bedford, Mass., .....	George B. Emerson, .....	8	5
1843	Pittsfield, Mass., .....	George B. Emerson, .....	12	9
1844	Portland, Maine, .....	George B. Emerson, .....	11	10
1845	Hartford, Conn., .....	George B. Emerson, .....	11	10
1846	Plymouth, Mass., .....	George B. Emerson, .....	10	8
1847	Concord, N. H., .....	George B. Emerson, .....	7	3
1848	Bangor, Maine, .....	George B. Emerson, .....	8	5
1849	Montpelier, Vt., .....	Gideon F. Thayer, .....	14	8
1850	Northampton, Mass., .....	Gideon F. Thayer, .....	11	6
1851	Keene, Mass., .....	Gideon F. Thayer, .....	10	7
1852	Troy, N. Y., .....	Gideon F. Thayer, .....	11	6
1853	New Haven, Conn., .....	Thomas Sherwin, .....	8	3
1854	Providence, R. I., .....	Thomas Sherwin, .....	5	5
1855	Bath, Maine, .....	Thomas Sherwin, .....	6	5
1856	Springfield, Mass., .....	John Kingsbury, .....		

These successive annual meetings have "promoted the cause of popular education."—1. By bringing teachers in every class of schools, and from all parts of the country, together, to the number of several hundred every year, to spend three or four consecutive days in familiar conversation, or in listening to lectures and discussions on subjects connected with the advancement of their common profession. 2. By the publication of able addresses and papers on the organization and administration of public schools, their studies, and methods of instruction and discipline.

Out of these discussions and publications has resulted improvements in legislation respecting schools, and especially in their supervision, both state and town-wise; in a gradation of schools in cities and large villages; in the introduction of new studies and exercises, such as music, drawing, physiology, branches of natural sciences, and English composition; in improved methods of teaching and illustrating studies before pursued; and, above all, in the establishment of Public High Schools and Normal Schools.

The following Table of Contents and Index to the Proceedings and Lectures is the best evidence of the usefulness of the Institute.

**LECTURES AND PROCEEDINGS OF THE AMERICAN INSTITUTE OF INSTRUCTION, from 1830 to 1855.—26 vols.**

The first or octavo series, from 1830 to 1839, were published by different houses; the last, or duodecimo series, from 1840 to 1855, are published by Ticknor, Field & Co., Boston.

- CONTENTS.—VOL. I, for 1830.** Introductory Discourse, by *President Wayland*. *Lecture I.* Physical Education, by *John C. Warren, M. D.* *Lecture II.* The Development of the Intellectual Faculties, and on Teaching Geography, by *James G. Carter*. *Lecture III.* The Infant School System, by *William Russell*. *Lecture IV.* The Spelling of Words, and a Rational Method of Teaching their Meaning, by *Gideon F. Thayer*. *Lecture V.* Lyceums and Societies for the Diffusion of Useful Knowledge, by *Nehemiah Cleaveland*. *Lecture VI.* Practical Method of Teaching Rhetoric, by *Samuel P. Newman*. *Lecture VII.* Geometry and Algebra, by *F. J. Grund*. *Lecture VIII.* The Monitorial System of Instruction, by *Henry K. Oliver*. *Lecture IX.* Vocal Music, by *William C. Woodbridge*. *Lecture X.* Linear Drawing, by *Walter R. Johnson*. *Lecture XI.* Arithmetic, by *Warren Colburn*. *Lecture XII.* Classical Learning, by *Cornelius C. Fildes*. *Lecture XIII.* The Construction and Furnishing of School-Rooms and School Apparatus, by *William J. Adams*.
- VOL. II, for 1831.** Introductory Lecture, by *James Walker*. *Lecture I.* Education of Females, by *George B. Emerson*. *Lecture II.* Moral Education, by *Jacob Abbott*. *Lecture III.* Usefulness of Lyceums, by *S. C. Phillips*. *Lecture IV.* Education of the Five Senses, by *William H. Brooks*. *Lecture V.* The Means which may be employed to stimulate the Student without the aid of Emulation, by *John L. Parkhurst*. *Lecture VI.* Grammar, by *Gould Brown*. *Lecture VII.* Influence of Academies and High Schools on Common Schools, by *William C. Fowler*. *Lecture VIII.* Natural History as a Branch of Common Education, by *Clement Durgin*. Prize Essay on School-Houses, by *W. A. Alcott*.
- VOL. III, for 1832.—Introductory Discourses, by Francis C. Gray.** *Lecture I.* The best Methods of Teaching the Living Languages, by *George Ticknor*. *Lecture II.* Some of the Diseases of a Literary Life, by *G. Hayward, M. D.* *Lecture III.* The Utility of Visible Illustrations, by *Walter R. Johnson*. *Lecture IV.* The Moral Influences of Physical Science, by *John Pierpont*. *Lecture V.* Prize Essay, on the Teaching of Penmanship, by *B. B. Foster*. *Lecture VI.* Nature and Means of Early Education, as deduced from Experience, by *A. B. Alcott*. *Lecture VII.* On Teaching Grammar and Composition, by *Asa Rand*.
- VOL. IV, for 1833.—Introductory Lecture, by William Sullivan.** *Lecture I.* On the Importance of a Knowledge of the Principles of Physiology to Parents and Teachers, by *Edward Reynolds, M. D.* *Lecture II.* The Classification of Schools, by *Samuel M. Burnside*. *Lecture III.* Primary Education, by *Gardner B. Perry*. *Lecture IV.* Emulation in Schools, by *Leonard Withington*. *Lecture V.* The best Method of Teaching the Ancient Languages, by *Alpheus S. Packard*. *Lecture VI.* Jacotot's Method of Instruction, by *George W. Greene*. *Lecture VII.* The best Method of Teaching Geography, by *W. C. Woodbridge*. *Lecture VIII.* Necessity of Educating Teachers, by *Samuel R. Hall*. *Lecture IX.* The Adaptation of Intellectual Philosophy to instruction, by *Abijah R. Bahr*. *Lecture X.* The best Mode of Teaching Natural Philosophy, by *Benjamin Hale*.
- VOL. V, 1834.—Introductory Lecture, by Caleb Cushing.** *Lecture I.* The best Mode of Fixing the Attention of the Young, by *Warren Burton*. *Lecture II.* The Improvement which may be made in the Condition of Common Schools, by *Stephen Furlay*. *Lecture III.* Duties of Parents in regard to the Schools where their Children are instructed, by *Jacob Abbott*. *Lecture IV.* Maternal Instruction and Management of Infant Schools, by *M. M. Carli*. *Lecture V.* Teaching the Elements of Mathematics, by *Thomas Sherwin*. *Lecture VI.* The Dangerous Tendency to Innovations and Extremes in Education, by *Hubbard Winslow*. *Lecture VII.* Union of Manual with Mental Labor, in a System of Education, by *Beriah Green*. *Lecture VIII.* The History and Uses of Chemistry, by *C. T. Jackson*. *Lecture IX.* Natural History as a study in Common Schools, by *A. A. Gould, M. D.* *Lecture X.* Science of Government as a Branch of Popular Education, by *Joseph Story*.
- VOL. VI, for 1835.—Introductory Lecture, by W. H. Furness.** *Lecture I.* The Study of the Classics, by *A. Crosby*. *Lecture II.* Education for an Agricultural People, by *Samuel Nott, Jr.* *Lecture III.* Political Influence of Schoolmasters, by *E. Washburn*. *Lecture IV.* State and Prospects of the German Population of this Country, by *H. Bokum*. *Lecture V.* Religious Education, by *R. Park*. *Lecture VI.* Importance of an Acquaintance with the Philosophy of the Mind to an Instructor, by *J. Gregg*. *Lecture VII.* Ends of School Discipline, by *Henry L. McKean*. *Lecture VIII.* Importance and Means of Cultivating the Social Affections among Pupils, by *J. Blanchard*. *Lecture IX.* Meaning and Objects of Education, by *T. B. Fox*. *Lecture X.* Management of a Common School, by *T. Dwight, Jr.* *Lecture XI.* Moral and Spiritual Culture in Early Education, by *R. C. Waterston*. *Lecture XII.* Moral Uses of the Study of Natural History, by *W. Channing, M. D.* *Lecture XIII.* Schools of the Arts, by *W. Johnson*.
- VOL. VII, for 1836.—Lecture I. Education of the Blind, by *Samuel G. Howe, M. D.* *Lecture II.* Thorough Teaching, by *William H. Brooks*. *Lecture III.* Physiology, or "The House I live in," by *William A. Alcott*. *Lecture IV.* Incitements to Moral and Intellectual Well-Doing, by *J. H. Bletcher*. *Lecture V.* Duties of Female Teachers of Common Schools, by *Daniel Kimball*. *Lecture VI.* Methods of Teaching Elocution in Schools, by *T. D. P. Stone*. *Lecture VII.* Influence of Intellectual Action on Civilization, by *H. R. Cleaveland*. *Lecture VIII.* School Discipline, by *S. R. Hall*.**
- VOL. VIII, for 1837.—Introductory Discourse, by Rev. Elipha White.** *Lecture I.* Study of the Classics, by *John Mulligan*. *Lecture II.* Moral Education, by *Joshua Bates*. *Lecture III.* Study of Natural History, by *John Lewis Russell*. *Lecture IV.* Comparative Merits of Private and Public Schools, by *Theodore Edison*. *Lecture V.* Elocution, by *David Fudick, Jr.* *Leo*

ture VI. Relation between the Board of Trustees and the Faculty of a University, &c., by *Jasper Adams*. Lecture VII. School Reform, or Teachers' Seminaries, by *Charles Brooks*. Lecture VIII. Teaching of Composition in Schools, by *R. G. Parker*. Lecture IX. Evils of the Present System of Primary Instruction, by *Thomas H. Palmer*. Lecture X. Reading and Declaration, by *William Russell*.

VOL. IX, for 1838.—Lecture I. Literary Responsibility of Teachers, by *Charles White*. Lecture II. The Head and the Heart; or, The Relative Importance of Intellectual and Moral Culture, by *Elisha Bartlett*. Lecture III. Vocal Music in Common Schools, by *Joseph Harrington, Jr.* Lecture IV. Model Schools, by *Thomas D. James*. Lecture V. Observations on the School System of Connecticut, by *Denison Olmsted*. Lecture VI. Teaching of English Grammar, by *R. G. Parker*. Lecture VII. Mutual Duties of Parents and Teachers, by *David P. Page*. Lecture VIII. Man, the Subject of Education, by *Samuel G. Goodrich*.

VOL. X, for 1839.—Introductory Discourse, The Education of a Free People, by *Robert Hamilton, Jr.* Lecture I. Physiology of the Skin, by *John G. Metcalf, M. D.* Lecture II. Mind and its Developments, by *Emerson Davis*. Lecture III. A Classic Taste in our Common Schools, by *Luther B. Lincoln*. Lecture IV. Natural Theology as a Study in Schools, by *Henry A. Miles*. Lecture V. Division of Labor in Instruction, by *Thomas Cushing, Jr.* Lecture VI. The Claims of our Age and Country upon Teachers, by *David Mack*. Lecture VII. Progress of Moral Science, and its Application to the Business of Practical Life, by *Alexander H. Everett*. Lecture VIII. The Comparative Results of Education, by *T. P. Redman*. Lecture IX. Physical Education, by *Abel L. Pierce, M. D.*

VOL. XI, NEW SERIES, for 1840.—Lecture I. Intellectual Education in Harmony with Moral and Physical, by *Joshua Bates*. Lecture II. Results to be aimed at in School Instruction and Discipline, by *T. Cushing, Jr.* Lecture III. Duty of Visiting Schools, by *Thomas A. Greene*. Lecture IV. Objects and Means of School Instruction, by *A. B. Mussey*. Lecture V. Courtesy, and its Connection with School Instruction, by *G. F. Thayer*. Lecture VI. On the Brain and the Stomach, by *Usher Parsons, M. D.* Lecture VII. Common Complaints made against Teachers, by *Jacob Abbott*.

VOL. XII, for 1841.—Lecture I. Best Method of Preparing and Using Spelling-Books, by *Horace Mann*. Lecture II. Best Method of Exercising the Different Faculties of the Mind, by *Wm. B. Fiske*. Lecture III. Education of the Laboring Classes, by *T. Parker*. Lecture IV. Importance of the Natural Sciences in our System of Popular Education, by *A. Gray*. Lecture V. Moral Culture Essential to Intellectual Education, by *E. W. Robinson*. Lecture VI. Simplicity of Character, as Affected by the Common Systems of Education, by *J. S. Dwight*. Lecture VII. Use of the Globes in Teaching Geography and Astronomy, by *A. Fleming*. Lecture VIII. Elementary Principles of Constitutional Law, as a Branch of Education in Common Schools, by *Edward A. Lawrence*.

VOL. XIII, for 1842.—Lecture I. Moral Education, by *George B. Emerson*. Lecture II. Universal Language, by *Samuel G. Howe*. Lecture III. The Girard College, by *E. C. Winsor*. Lecture IV. School Room, as an aid to Self-Education, by *A. B. Mussey*. Lecture V. Moral Responsibility of Teachers, by *William H. Wood*. Lecture VI. The Teacher's Daily Preparation.

VOL. XIV, for 1843.—Lecture I. The Bible in Common Schools, by *Heman Humphrey, D. D.* Lecture II. The Classification of Knowledge, by *Solomon Adams*. Lecture III. Moral Dignity of the Teacher's Office, by *Prof. I. H. Agnew*. Lecture IV. A few of the "How's" of School-keeping, by *Roger S. Howard*. Lecture V. Advancement in the Means and Methods of Public Instruction, by *David P. Page*. Lecture VI. Reading, by *C. Pierce*. Lecture VII. Some of the Duties of the Faithful Teacher, by *Alfred Greenleaf*. Lecture VIII. Some of the Defects of our Systems of Education, by *R. B. Hubbard*. Lecture IX. Importance of our Common Schools, by *S. J. May*.

VOL. XV, for 1844.—Lecture I. The Religious Element in Education, by *Calvin E. Stowe*. Lecture II. Female Education, by *William Russell*. Lecture III. Some of the Obstacles to the Greater Success of Common Schools, by *Charles Northend*. Lecture IV. Some of the Dangers of Teachers, by *Daniel P. Gailoup*. Lecture V. Natural History as a Regular Classic in our Seminaries, by *Charles Brooks*. Lecture VI. Classical Instruction, by *A. H. Weld*. Lecture VII. School Discipline, by *Joseph Hale*. Lecture VIII. Methods of Teaching to Read, by *Samuel S. Greene*. Lecture IX. The Duty of the American Teacher, by *John N. Bellows*. Lecture X. The Necessity of Education in a Republican Form of Government, by *Horace Mann*.

VOL. XVI, for 1845.—Lecture I. Dignity of the Teacher's Office, by *Joel Hawes, D. D.* Address. The Formation and Excellence of the Female Character, by *Joel Hawes, D. D.* Lecture II. The Duties of Examining Committees, by *Prof. E. D. Sanborn*. Lecture III. The Perfect Teacher, by *Denison Olmsted, L. L. D.* Lecture IV. Physiology, by *Edward Jarvis, M. D.* Lecture V. Intellectual Arithmetic, by *F. A. Adams*. Lecture VI. County Teachers' Institutes, by *Salom Tween*. Lecture VII. Geography, by *William B. Fiske*. Lecture VIII. Vocal Music in Common Schools, by *A. N. Johnson*. Lecture IX. History, by *George S. Hillard*.

VOL. XVII, for 1846.—Journal of Proceedings. List of Officers. Annual Report. Lecture I. Home Preparation for School, by *Jason Watman*. Lecture II. The Influence of Moral upon Intellectual Improvement, by *H. B. Hooker*. Lecture III. The Essentials of a Common School Education, and the conditions most favorable to their Attainment, by *Rufus Putnam*. Lecture IV. The Education of the Faculties, and the Proper Employment of Young Children, by *Samuel J. May*. Lecture V. The Obligation of Towns to Elevate the Character of our Common Schools, by *Luther B. Lincoln*. Lecture VI. Importance of Cultivating Taste in Early Life, by *Ariel Pariah*. Lecture VII. On Phototypy and Phonography, or Speech-Writing and Speech-Printing, by *Stephen P. Andrews*. Lecture VIII. On the Study of the English Language, by *D. Huntington*.

VOL. XVIII, for 1847.—Journal of Proceedings. List of Officers. Lecture I. On the Study of Language, by *Hubbard Winslow*. Lecture II. On the Appropriateness of Studies to the State of Mental Development, by *Thomas P. Redman*.

**VOL. XIX, for 1849.** Journal of Proceedings. List of Officers. *Lecture I.* Failures in teaching, by *John Kingsbury*. *Lecture II.* Co-operation of Parents and Teachers, by *Joseph Hatchelder*. *Lecture III.* Qualifications of the Teacher, by *Rev. Nathan Munroe*. *Lecture IV.* School Government, by *J. D. Philbrick*. *Lecture V.* The Improvement of Common Schools, by *Wm. D. Swan*.

**VOL. XX, for 1849.** Journal of Proceedings. List of Officers. *Lecture I.* The Defect of the Principle of Religious Authority in Modern Education, by *John H. Hopkins, D.D.* *Lecture II.* The Education demanded by the peculiar character of our Civil Institutions, by *Benjamin Larabee, D. D.* *Lecture III.* Earnestness, by *Roger S. Howard*. *Lecture IV.* The Essentials of Education, by *Thomas H. Palmer*. *Lecture V.* The Claims of Natural History, as a branch of Common School Education, by *William O. Ayers*. *Lecture VI.* Education the Condition of National Greatness, by *Prof. E. D. Sanborn*. *Lecture VII.* The Duties of Legislatures in relation to the Public Schools in the United States, by *Rev. Charles Brooks*. *Lecture VIII.* Practical Education, by *W. C. Goldthwait*.

**VOL. XXI, for 1850.** Journal of Proceedings. List of Officers. Annual Report. *Lecture I.* God's Plan for Educating Man, by *C. C. Chase*. *Lecture II.* Political Economy, as a Study for Common Schools, by *Amos Walker*. *Lecture III.* The Importance of Early Training, by *Solomon Jenner*. *Lecture IV.* Characteristics of the True Teacher, by *John D. Philbrick*. *Lecture V.* Influence of the Social Relations in the West upon Professional Usefulness and Success, by *Edward Wyman*. Appendix. Instruction in History, by *Elizabeth P. Peabody*. General Index, from 1830 to 1850. List of Members, Past and Present.

**VOL. XXII, for 1851.** Journal of Proceedings. List of Officers. Annual Report. *Lecture I.* Teachers' Morals and Manners, by *Henry K. Oliver*. *Lecture II.* The Supervision of Schools, by *D. B. Hagar*. *Lecture III.* The Teacher in the Nineteenth Century, by *Thomas Cushing, Jr.* *Lecture IV.* Importance of Moral and Religious Education in a Republic, by *William D. Northend*. *Lecture V.* The Manifestations of Education in Different Ages, by *Samuel W. Bates*. *Lecture VI.* On the Present Condition and Wants of Common Schools, by *Rev. L. W. Leonard*. *Lecture VII.* Methods of Teaching Spelling, by *Christopher A. Green*. *Lecture VIII.* Physical Education, by *Rev. Darwin H. Barney*.

**VOL. XXIII, for 1852.** Proceedings. List of Officers. Annual Report. *Lecture I.* The Incentives to Mental Culture among Teachers, by *James D. Butler*. *Lecture II.* Dr. Thomas Arnold, by *Joshua Bates, Jr.* *Lecture III.* Self Reliance, by *William H. Wells*. *Lecture IV.* The School System of the State of New York, by *Joseph McKeen*. *Lecture V.* Essential Elements in American Education, by *Charles H. Wheeler*. *Lecture VI.* Drawing, a Means of Education, by *William J. Whitaker*.

**VOL. XXIV, for 1853.** Journal of Proceedings. List of Officers. Prize Essay, by *E. A. H. Allen*. *Lecture I.* Reading, by *F. T. Russell*. *Lecture II.* Life and Educational Principles of Pestalozzi, by *Hermann Krusi*.

**VOL. XXV, for 1854.** Journal of Proceedings. List of Officers. Annual Report of Directors. *Lecture I.* Introductory. Progress of Education for the last twenty-five years, by *Frederic Wayland*. *Lecture II.* The Prominence which should be given to Facts in Education, by *Worthington Hooker*. *Lecture III.* The Claims of Classical Culture upon the attention of American Teachers and American Schools, by *Elbridge Smith*. *Lecture IV.* Education an Artistic Work, by *E. B. Huntington*. *Lecture V.* The Right Use of the Passions and Emotions in the Work of Intellectual Culture and Development, by *Edward Beecher*.

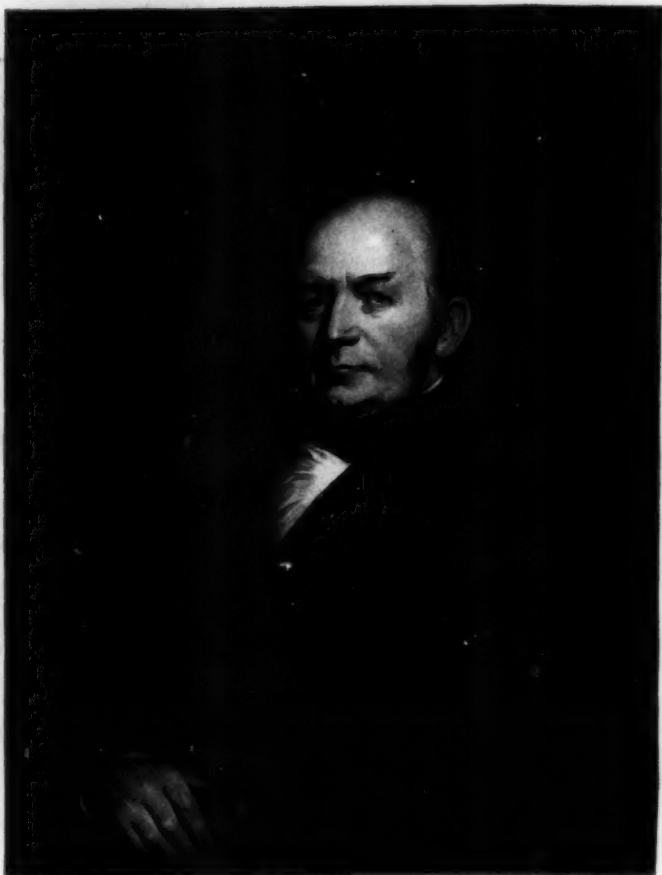
**VOL. XXVI, for 1855.** Journal of Proceedings. List of Officers. Annual Report of Directors. *Lecture I.* Claims of Teaching to the Rank of a Distinct Profession, by *B. F. Tweed*. *Lecture II.* Geometry the Foundation of Learning, by *Thomas Hill*. *Lecture III.* The Moral Office of the Teacher, by *G. Reynolds*. *Lecture IV.* Strength and Beauty in the Education of our Daughters, by *Edward P. Weston*. *Lecture V.* Unconscious Tuition, by *F. D. Huntington*.

The foregoing Table of CONTENTS of the twenty-six volumes of Proceedings and Lectures, published annually from 1830 to 1855, gives the leading subjects of two hundred and eleven lectures, by upwards of one hundred and seventy different lecturers, representing almost every profession, and every grade and department of schools and education, and many of them among the most prominent teachers, educators, and scholars of the country. This Table includes only the subject of the lectures printed by the Institute, but does not include the resolutions and topics discussed at the annual meetings, and in nearly one hundred lectures delivered but not printed.

To exhibit the wide range of topics presented, and in most instances discussed with considerable fullness and thoroughness, at the twenty-six annual meetings, embracing over one hundred and twenty-eight days, and as many evenings, as well as the names of the lecturers, including the subjects of the lectures, whether they are published in the annual volume or not, together with the principal subjects brought forward by resolutions or otherwise, the following INDEX is presented. [See Page 241.]







C. Harding P.

H. Wright Smith Eng.

WILLIAM LAWRENCE.







## II. WILLIAM LAWRENCE.

WANT teaches us value. They know best how to prize a thing, who are deprived of it, or have never been blessed with its possession. This explains the fact that education, for its wider diffusion, and its enlarged instrumentalities, is greatly indebted to the benefactions of many, who in their youth had themselves but slight participation in its advantages.

If the facilities of Commerce have been multiplied, and her gains increased by the discoveries of science and the inventions of art, commerce has repaid the debt by her rich gifts to schools and colleges, her noble endowment of institutions of learning, at which science can be studied, and art promoted, and many successive generations have the benefit of the highest intellectual and moral culture.

The history of education in all ages and countries, bears some testimony to this fact; New England especially abounds with evidences and illustrations of it. The sneer about "the Almighty Dollar," in connection with American character, is as false as it is silly, and as ungenerous as it is untrue. The New England people are undoubtedly frugal, industrious, enterprising. Like all the rest of the world they love money, they strive to get it, and commonly succeed in obtaining it. But they know how to use and enjoy it. They love it not for its own sake simply, but for what it enables them to do, and as a general remark it may be said, that they do well with it. They have devoted large portions of it, in every generation, to objects of public benefit and blessing.

New England, as regards the Anglo Saxon occupation of her soil, is but little over two hundred years old. She is not without spot or blemish, either in her present condition or her past history, but if we collect the statistics of her beneficence; if we take an inventory of her schools, colleges, hospitals, asylums, the various institutions of learning or philanthropy, which that beneficence has established, endowed, made strong and efficient; the result is honorable alike to human nature and the New England character. It teaches that wealth does not always beget a hard-hearted, selfish man; that many rich in this world's goods, have also been rich in good deeds, and as faithful

stewards of the Lord's bounty, have used their wealth for wise and noble purposes.

Among those entitled to this eulogy, whose names may claim a high place on the list of benefactors to the cause of education, is the late WILLIAM LAWRENCE, who, in common with his brothers Amos and Abbott, of whom we have already given some notices in this Journal, was a noble specimen of a New England merchant, and a Christian citizen and patriot. He was born at Groton, September 7, 1783, and was the third son and child of Samuel and Susan Parker Lawrence, some account of whom may be interesting as indicating the source of the strongly marked characters of their sons. The name of Lawrence dates far back in English history, and has gathered to itself honors in many successive generations. The common ancestor of the New England Lawrences, was John Lawrence, of Great St. Albans, Herefordshire, who came to this country in 1635, and settled at Watertown, where he resided many years, became the father of a numerous family, and the possessor, as the town records show, of many valuable parcels of land. In 1660, he removed to Groton, then recently erected into a plantation or township by order of the General Court, on the petition, with others, of Dean Winthrop, son of Gov. Winthrop. It received its name probably from Winthrop, who came from Groton, Suffolk County, England. Here John Lawrence soon became an honored, trusted, and influential citizen, and here some one or more families of his descendants have ever since resided, identifying the name of Lawrence with the history and character of the town.

Samuel Lawrence was the fifth generation in descent from the above mentioned John Lawrence. He was born in Groton, April, 24th, 1754, and was, therefore, in his early manhood, when our revolutionary struggle commenced. In common with all the hardy, intelligent, liberty-loving yeomanry of New England, he espoused the cause of the colonies, and devoted himself to it with a courage that never failed, a constancy that never faltered till his country had passed "from impending servitude to acknowledged independence." At work in the field, ploughing his paternal acres, when the news of the attack upon Concord, reached Groton; he immediately unloosed a horse from his team, and mounting, rode rapidly through Groton, and some of the adjoining towns, spreading the alarm, and summoning the militia to assemble. He returned in season to join his own company at the church at Groton, at 12 o'clock, where after prayer offered by the pastor of the town, they started for Concord, helped to swell that impetuous tide of resistance which drove back the invaders,



and slept that night on Cambridge Common, after a forced march of thirty miles, and hot skirmishes with the retreating foe. From that time till the peace of '83 he was "a soldier of the Revolution," and, with the exception of one or two brief visits to his family and friends at Groton, he was in actual service throughout the whole war. He rose to the rank of Major, and for a considerable period was attached to General Sullivan's Staff, as adjutant, an office for which his powerful lungs and sonorous voice, which could be heard throughout a long line of troops, peculiarly fitted him. He was in many of the severest battles of the Revolution. At Bunker Hill, where he was slightly wounded, his coat and hat were pierced with the balls of the enemy, and were preserved in the family for many years. At one time he commanded a company whose rank and file were all negroes, of whose courage, military discipline, and fidelity, he always spoke with respect. On one occasion, being out reconnoitering with this company, he got so far in advance of his command, that he was surrounded, and on the point of being made prisoner by the enemy. The "colored boys" soon discovered his peril, rushed to his rescue, and fought with the most determined bravery, till that rescue was effectually secured. He never forgot this circumstance, and ever after took especial pains to show kindness and hospitality to any individual of the colored race,\* who came near his dwelling.

Mr. Lawrence was married during the war, in the year 1777, to Susanna Parker, and while the marriage ceremony was in progress, the tolling of the bell summoned the minute men to assemble at the church for instant service. The moment the rite was concluded, he parted from his bride and friends and hastened to Rhode Island. He was permitted to return, however, on a brief furlough of two or three days, at the expiration of which he entered again upon active service, from which he had no respite till late in the autumn of 1778, when he visited Groton, rejoicing to find himself a father as well as a husband.

At the close of the war, Major Lawrence settled in Groton, on a beautiful farm on the outskirts of the village, where he passed the remainder of his life, honored and esteemed by his townsmen, who gladly elected him to such offices and honors as he was willing to accept. A man of strong sense, of clear judgment, of stern integrity, of ardent patriotism, and devout piety, his influence was felt, his energies exerted in everything that concerned the social, moral, and religious improvement of the town. He was deacon of the First Congregational church in Groton for more than forty years. He was one of the original founders, and for thirty-three years a Trustee of

Groton Academy, an institution which his sons have since munificently endowed. In the Shay's rebellion, and during all the troubles of 1786-87, he stood firm for the government, and was foremost in advocating the supremacy of the laws. A devout man, strict in all religious observances, firm, almost rigid in the discipline of his family, he was cheerful, joyous, benignant, "given to hospitality," and never so happy as when making happy those around him. The young loved him, and the reverence with which they gathered around him was tempered by the most confiding affection.

He lived to be present at the laying of the corner-stone of the Bunker Hill Monument in 1825; an occasion in which as one of the survivors of that most memorable and important battle of the Revolution, he felt a deep personal interest. The excitements of that week passed in Boston, brought on a paralytic attack, from which he never entirely recovered. He died Nov. 8th, 1827, aged 73.

Susan Parker Lawrence was born in Groton, where her father, William Parker, cultivated a farm, now owned by the town. He subsequently removed to Concord, where he resided several years. Susan, his youngest daughter was distinguished for quiet and gentle manners, a loving spirit, a truly feminine grace and dignity of character; with these qualities were united a nobility of soul, a lofty and indomitable energy, that made honor and reverence to mingle largely in the love borne to her by her husband and children. In illustration of her own energy, as well as of the customs of that period, it may be mentioned that while her father lived at Concord, it was no unusual thing for her to mount a horse, ride to the ferry at Charlestown, a distance of seventeen miles, go over to Boston "shopping," and return to Concord on the same day. From a hill in the rear of her father's residence, in the easterly part of the village of Concord, she saw the British troops enter that town on the morning of the 19th of April, 1776, and remained there till she saw them pass out a retreating and discomfited foe. Like most of the women of that day, she was an ardent patriot, espousing the cause of the colonies with an intense devotion, ready to endure all the trials and make all sacrifices which the interests of that cause demanded; and it may be that not a little of the courage, the perseverance, and fidelity displayed by her lover and husband, amid the perils and hardships of that long struggle for liberty and independence, is to be ascribed to her inspiring influence.

To an extraordinary energy of character, and excellent habits of industry and frugality, which enabled her to manage successfully in the absence of her husband, both the affairs of the farm and of the

household, she added the power of religious faith, and the winning graces of an elevated Christian character. She was eminently a religious woman, governing herself by religious principles in the discipline of her family, and the education of her children; and thus exercising over them, in the forming period of character, a winning and persuasive religious influence. In the earliest recollection of all of them there distinctly abides her hallowed image, kneeling at their bedside and breathing a devout, earnest prayer, for the divine protection and blessing upon their young hearts. Her faith, which had ever adorned her life and character, which made her active, open, honorable and useful, shed a halo of moral beauty and glory around her declining years. Serenely cheerful, still young in her affections and sympathies, devoutly submissive, ready to "abide or to depart and be with Christ;" she presented a most attractive picture of lovely and venerable old age. She survived her husband eighteen years, and died May 2d, 1845, aged 89 years.

Such were the parents of "the Lawrences"—intelligent, virtuous, high principled, devout, ordering their family in the fear of God, and sanctifying all social affections and sympathies, all domestic duty and intercourse by Christian faith and daily prayer. A family thus ordered and pervaded by the spirit of religion, is a miniature of heaven; it is a nursery of virtue to the state, the church, the world. Incalculable blessings and holy influences go forth from it. Here is the point at which to begin the reform of the world,—the family, which is a divine institution, and every scheme of philanthropy, every enterprise of social or civic reform that overlooks or disregards this, will fail. Fidelity in the improvement and education of their household, preserving good discipline, sound principles, and habits of order there, in making their home the abode of peace, happiness, virtue, religion, so that the generation reared in it, go forth intelligent, honest, pure, strong in virtuous principles, in religious affections and purposes; this is the first grand duty which the heads of a family owe to God, to society, to their children, and to their own souls. Faithful here, they are benefactors of the community to an extent which can not be calculated; negligent in this, they have no claim to be benefactors, though their names stand first among the contributors to any public charity in the land.

Samuel and Susan Parker Lawrence did not fail in this great duty. They made their home eminently a Christian home, and to the influences of this home and of those parents, may be traced all the marked and prominent features in the character of their sons.

Of these sons, William, the subject of this memoir, originally

intended to be a farmer; a strong constitution, robust health, and a vigorous physical frame, united with a natural love of agricultural pursuits, with which he had been familiar from his childhood, had their influence in producing this determination. But this physical strength was under the direction of an earnest, enthusiastic spirit, that might easily be led to task it beyond what it could bear; and it was so tasked. In the autumn of 1809, after three or four years of very hard work on the farm, his health failed, and there was so much danger that his strength and constitution would break down entirely, that it was thought best that he should relinquish for a season all laborious occupations, and leaving home, pass the winter quietly with his brother Amos, who had then recently established himself in business in Boston. He accordingly repaired to Boston in October, and during the winter remained with his brother more as a companion than a clerk or an apprentice; occasionally helping him, and doing so more and more as he became interested and competent, in the sale of goods at the store, and in making purchases at auctions.

When the spring opened he found himself much improved in health, but not strong enough to resume the severe labors that would devolve upon him in the care and culture of his father's farm. He found also that the winter's experience had developed a tact and taste for commercial pursuits, and he determined to change his plan of life and become a merchant. He passed the remainder of the year, therefore, with his brother, adding to his experience and knowledge; and in 1810, commenced business for himself in a small store near that of his brother Amos, with no capital but his own energies and talent, and the credit which these could procure for him. The fact, that at twenty-six years of age, with only the limited experience of a few months in his brother's store, he passed at once from agricultural to commercial pursuits, and prosecuted the latter from the beginning with an uninterrupted and constantly widening success, is a sufficient evidence both of the energy of his character and the force and capacity of his intellect.

The incidents of his commercial life, are few and simple. He continued in business by himself, gradually enlarging his operations as his means increased, till 1822, when he formed a partnership with his brother Samuel, under the style of W. & S. Lawrence. This union of his own experience and judgment with the fresh energy and talent of his younger brother, made a strong commercial house, whose operations soon became extensive and prosperous. In 1825, W. & S. Lawrence, who had hitherto been chiefly importers, became

interested in domestic manufactures. It was through their agency and influence that the first incorporated company was formed, (the Middlesex Company,) at Lowell, for the manufacture of woollen goods. This enlargement of their operations required an addition to the strength and means of the firm, which was accordingly made. Mr. W. W. Stone became a partner of the house in 1826, and the business was transacted under the firm of W. & S. Lawrence & Stone. In connection with this firm, Mr. Lawrence continued in active business, principally domestic commission business, the manufacture and sale of American woolens, till 1842, when he retired with an ample fortune, partly acquired by his own industry and enterprise, and partly received as his wife's patrimony from her father, William Bordman of Boston, whose daughter Susan, Mr. Lawrence had married in 1813, and who still survives him, together with four children, one son and three daughters, all of whom are married.

In addition to the wise forethought and patriotic enterprise with which he and others encouraged the introduction of domestic manufactures, two events in his commercial career may be briefly noticed. In the movement made by Messrs. Greenough & Cotting, by which Cornhill, leading from Dock Square to Court Street, was opened, Mr. William Lawrence took an active and hearty interest, and was one of the first to occupy one of the stores in the lower part of the new street. This was at that time one of the most important enterprises, and a greater change affecting the convenience of intercourse in the heart of the city, than any that had been attempted. Mr. Lawrence was interested in it, through that feeling which prompted him always to encourage by his influence and means, every enterprise that promised to promote the prosperity and progress of the community.

But as a merchant and a business man, the most signal point in his career, that which proves his clear discernment, not only of the importance to all the interests of trade of an equalized circulating medium, but of the best method of producing such equality of value in the circulating medium of New England, and which entitles him therefore, to the gratitude of the merchants and business men of Boston and the New England States, was his persevering efforts to introduce what is now familiarly known as "the Suffolk Bank System." This Bank was chartered in 1818. Mr. Lawrence was a member of the Board of Directors from its organization up to the time of his death, a period of thirty years. It is not necessary that we should explain this "system" in detail. It is sufficient for us to say that the bills of every bank entering into it, are current at par value, at Boston,

and all over New England. If a trader in the country has a demand to meet in Boston, he can send or bring down the bills of the local bank in his neighborhood; the Boston merchant can receive them without discount, because he can immediately deposit them at the Suffolk Bank, and receive in return Suffolk Bank bills or specie. The effect is obvious, but the value and importance of the arrangement in facilitating all the exchanges of business, or the difficulty of introducing it, can only be justly appreciated by those who are old enough to remember the state of things that existed before it was introduced. Then the merchants and traders of Boston, (formerly the central market of the New England States more than now,) were in the habit of selling the bills of country banks to brokers at a discount which depended upon the distance of the bank from Boston, the difficulty of sending the bills for redemption to the towns where they were payable, a want of knowledge of their responsibility, and other like considerations. There was an inequality and irregularity in the currency, causing great embarrassments and delays in pecuniary transactions. These operated as a great restriction upon trade. To remove it was the object of the "system" introduced and carried to a successful issue by the Suffolk bank. The undertaking was a bold one, and indomitable energy and perseverance were necessary to success. It naturally met with opposition at first, from the sensitiveness of the several states in regard to their currency, and from the prejudices of the smaller and jealousy of the larger towns in the Commonwealth. The earnest advocacy of its friends and the practical working of the system as fast and as far as it prevailed, gradually overcame this opposition. The "system" now embraces all or nearly all the banks in the New England States, and gives to these states a sound and uniform currency, the comforts and advantages of which can not be too highly appreciated.

It is not intended to detract in the least, from the credit due to other early and earnest advocates of the system, (some of whom are still connected with the Suffolk bank, and take a deep interest in its prosperity and usefulness,) when we say that its success is to be attributed in no small degree, to the wise, various and persevering efforts of Mr. William Lawrence.

For these efforts, were there no other cause, he is entitled to the grateful remembrance of the mercantile community.

On retiring from active business in 1842, Mr. Lawrence turned with fresh relish to agricultural pursuits, and the old homestead, and the paternal acres at Groton, became objects of deep interest. He continued to reside in Boston, but the improvement of the farm at



Groton occupied much of his thought, and gave a zest and pleasure to the closing years of his life. His health which had been failing for some time, broke down entirely in the autumn of 1847, and after a lingering illness of ten months, which he bore with Christian fortitude and resignation; he expired on the 14th of October, 1848.

As a citizen and merchant of Boston, Mr. Lawrence was always a cheerful and prominent contributor to every enterprise of Christian benevolence, and to any object that an enlightened patriotism and a broad and generous humanity approved. But in harmony with the purpose of this Journal, his claims as a benefactor to the cause of education, demand our particular attention. These claims are substantiated not simply by the munificence of his gifts to the Lawrence Academy, but also by the wisdom of the manner in which they were bestowed, and the good sense which marked the conditions annexed. The Groton Academy dates its origin from a joint stock organization formed for the purpose, on the 27th of April, 1793. Five pounds constituted a share of this stock. Three hundred and twenty-five pounds were raised by subscriptions, or shares taken by forty-four individuals, all of whom were inhabitants of Groton, except four, who were citizens of Pepperell. The town of Groton subscribed forty shares, on which, however, interest only was to be paid from year to year. Application was made to the General Court for an act of incorporation, which was granted, bearing date September 25th, 1793. Under this act, organization was duly effected, on the 17th of October, 1793, and fifteen persons chosen to constitute the Board of Trustees. In November of that year, the school opened, in the academy building which had been erected for the purpose, and which "stands yet on the same spot where it was originally placed, though at present it is not to be recognized in the pile of improvements which have been built up around it."

Thus small in its beginnings, and slender in its means, was this academy which is now one of the most flourishing and best endowed institutions of its class in New England. For some years the only resources of the school were the tuition fees of the pupils and the interest on the forty shares subscribed by the town of Groton. In 1797, on petition of the Trustees, the General Court made them a grant of one half a township of land in Maine, about eleven thousand five hundred and twenty acres, which was subsequently sold for fifty cents per acre. In 1825, the widow of James Brazier, Esq., one of the original subscribers to the joint stock for the establishment of the school, by her will, made the Trustees residuary legatees of one half

of her estate, besides leaving them specific legacies of five hundred dollars in money, payable on the death of each of five relations. In 1838 and 1839, Mr. Amos Lawrence made liberal donations of books and philosophical apparatus; and in 1842, he placed in the hands of the Trustees, the sum of two thousand dollars, to be expended according to their judgment, in enlarging and improving the academy building. But these things added but little to the cash funds of the academy, and while they enlarged its instrumentalities, they did little to place it upon a firm and permanent foundation. This it was left for William Lawrence to do, in 1844, by a donation of TEN THOUSAND DOLLARS. This donation was communicated to the Trustees in the following letter:

Boston, April 6th, 1844.

To the Trustees of Groton Academy:—

GENTLEMEN:—Born and educated in Groton, I feel a deep interest in its prosperity, and especially in your academy; an institution which my honored father labored so hard to bring into existence more than half a century ago, and to which I am indebted for what little education I possess.

Having been highly blessed in my temporal concerns, I have thought I could not better dispose of a portion of my abundance than to give to the academy over which you preside, a sum of money, for the advancement of education for all coming time.

I, therefore, hereby give to Groton Academy the sum of ten thousand dollars, and direct that the same shall be invested in such manner, for the benefit of said corporation, as the Trustees thereof shall, from time to time, deem safe and expedient, and that the net income thereof shall be applied in their discretion. I am especially desirous that such compensation shall be paid to the instructors of said academy, as shall secure for it constantly the services of learned persons, perfectly competent to all their duties.

And this gift is, therefore, upon condition that the present rate of charge for instruction in said academy shall not be reduced. But whenever hereafter, in any year, the whole net income of the present funds and property of said Institution, and of the fees received for instruction, added to the net income of said ten thousand dollars, shall be more than sufficient for the payment of liberal salaries to such instructors, so that a balance of said income shall remain unexpended, I request the said Trustees in their discretion, and if they deem it expedient, to pay and distribute such balance, or any of it, to and among such deserving male pupils, in such Institution, preparing for

a collegiate education, as the trustees may think deserving such aid; but not more than one hundred dollars shall be paid or allowed to any one such pupil in any one year. And in granting such aid, I earnestly request that no regard may be had to any sectarian views entertained by the pupils on the subject of the Christian religion.

You will please draw on Lawrence & Stone, Boston, for said sum of ten thousand dollars, in such sums and at such times as will suit your convenience.

Your obedient servant,

WILLIAM LAWRENCE.

This letter is an honorable testimony to the noble and generous feelings of the writer; and at the same time the three conditions annexed to the donation,—that there should be no diminution of the tuition fees, but that the income of the ten thousand dollars should be used in procuring the best and most competent teachers, that in case after paying liberal salaries to such, from the other resources of the academy, and the income of this fund, there should remain an unexpended balance, it was to be distributed at the discretion of the Trustees among meritorious students preparing for a collegiate education, and that in such distribution no regard should be had to any sectarian views entertained by the pupils on the subject of the Christian religion, are alike indications of Mr. Lawrence's practical wisdom, his sound judgment and his comprehensive charity. A special meeting of the Trustees was called to acknowledge this, the largest and most generous donation which they had at that time received; and on their petition to the General Court, the next winter, at the session of 1845, the corporate name was changed from "Groton Academy," to the "Lawrence Academy at Groton."

In 1846 Mr. William Lawrence made to this institution another donation of five thousand dollars to be expended under the direction of the Trustees in enlarging and improving the academy building, procuring a bell, ornamenting the grounds, &c., &c.; and during the same year Mr. Amos Lawrence purchased the residence of the late James Brazier, Esq., adjoining the academy lot, and presented it to the Trustees for the use of the successive preceptors of the academy.

Thus furnished with an enlarged and improved academy building, valuable additions to its library and philosophical apparatus, an elegant and commodious residence for the preceptor, and ten thousand dollars in funds, the institution was placed upon a secure and permanent foundation. Public attention was naturally directed to it, its scholars increased in number, its standard of education was elevated, its usefulness enlarged and extended, and had nothing further been

done, the propriety of the appellation, "the Lawrence Academy at Groton" would have been justified, and all who bore that family name might have felt a deep satisfaction in its past history, and its present and prospective usefulness.

Whether Mr. William Lawrence originally determined to give something more to this institution at his death, or whether that determination was produced by an observation of the good effected by his former donations, can not be clearly ascertained. Probably the purpose of further endowment was entertained, but left contingent upon the result of that observation. Always Mr. Lawrence exhibited one of the sure evidences of a pure heart, uncontaminated by those evil influences of wealth which beget pride, haughtiness, a selfish and worldly heart. He delighted in the memories and associations of his childhood and youth. The old homestead was a hallowed spot in his affections, of which nothing could take precedence. The friends of his early days, the people and the interests of his native town were never forgotten. There was something holy and reverent in his feelings toward Groton, and this feeling, always fresh and strong, increased both in tenderness and strength, as life waned, and he felt its end approaching. It was this feeling united with the clear observation of the good already done, that produced the munificent donation contained in the following codicil to his will.

"Desirous to increase the usefulness of the Lawrence Academy in Groton, and to place its prosperity, (as far as I can do so,) on a secure foundation; I have, at different times heretofore, made donations for its benefit, and have also made provision for it in my will. But, upon reflection, I am induced to apprehend that what I have thus done may not be sufficient to accomplish the objects I have in view. Therefore, I hereby revoke the bequest contained in my said will, of ten thousand dollars to the Trustees of the Lawrence Academy at Groton, and I hereby give to the Trustees of the Lawrence Academy at Groton, aforesaid, their successors and assigns forever, the sum of twenty thousand dollars, to be paid to the said corporation, within one year after my decease, without interest, to be held by them, as a permanent public corporate body, specially charged with the care and superintendence of education, upon the following trusts; that is to say, carefully to manage and invest the said sum of twenty thousand dollars as they shall deem most safe and advantageous, having more regard to the safety of the principal, than the amount of income; to collect and receive the interest and income thereof; to deduct therefrom, and pay all such necessary and proper charges as may be incurred in the management of the said trust fund; and to apply the

net interest and income of said twenty thousand dollars, or of the property in which it may be vested, to and for the following purposes, viz.: to add one thousand dollars of said net income annually, to the said principal sum, (so that it shall become part thereof,) until the whole principal fund held under this codicil shall amount to thirty thousand dollars; which shall forever afterwards be taken and deemed to be the principal trust fund; to apply the residue of the net interest and income of said twenty thousand dollars until said trust fund shall amount to thirty thousand dollars, and afterwards to apply the whole net income and interest of said trust fund of thirty thousand dollars to the payment of the expense of keeping the buildings of said corporation at all times sufficiently insured by some safe Insurance Company or Companies in said commonwealth, to the payment in whole or in part (in their discretion,) of the salaries and compensation of any instructor or instructors at said academy; to aid in the maintenance and education, at said academy of any such meritorious persons as may resort thither for instruction, who may in the opinion of said Trustees deserve and need such assistance, by advances as gifts or loans, (in the discretion of said Trustees,) not exceeding one hundred dollars to any one such student in any one year; and to apply such portion of said net income, as said Trustees may from time to time deem expedient, to the purchase of books for the library of said academy, and philosophical and other instruments for the use of the pupils.

"Whenever, and as often as from losses or other cause the said principal fund shall be less than thirty thousand dollars, I direct that one thousand dollars of the net income of the residue of said fund shall be added annually to the principal, until the whole fund shall amount to thirty thousand dollars, and whenever the capital fund shall sustain a loss or diminution of less than one thousand dollars, then and in every such case, and within one year afterwards, sufficient of said net income shall be taken and added to the principal to make the sum thirty thousand dollars. I earnestly enforce it on all those who may have the care and management of the funds and property given by me for the benefit of said academy, to invest the same with the utmost caution and prudence; to appropriate the net income as herein directed, and in applying portions of it to the benefit of deserving students, as herein provided, to do so without favor or partiality, and without regard to the religious sect to which any such student may belong, provided he be a Christian and a Protestant."

We lay the whole codicil before our readers, because we wish to do justice not simply to the benevolence of Mr. Lawrence, but to his

wisdom, his practical good sense, and sound judgment. These are strikingly manifest in this codicil. Every thing that ought to be left to the discretion of the Trustees, is entrusted to their decision from year to year, while every provision, condition; and restriction introduced, is marked by a wise forethought, a large, comprehensive prudence. The fund is charged with the expense incident to its proper care and management, with an insurance to be constantly had on the building belonging to the academy, and provision is made that the income shall be used to keep the capital sum up to the amount of thirty thousand dollars, in case it should at any time through bad investments or other causes be diminished. The wisdom of this last provision is obvious. Unless the whole should be at once and irretrievably lost, which is altogether improbable, it secures to the academy for all coming time, a capital of thirty thousand dollars, a sum sufficient to insure a perpetual prosperity and usefulness. Meeting these conditions, the Trustees are at liberty to use the income in paying the salaries of teachers either in whole or in part, in aiding indigent students either by an outright gift or by a loan for such term of time as they see fit, the amount in each case not to exceed one hundred dollars, or in purchasing books, philosophical and other instruments for the use of the pupil. Here all the great interests of the institution, its buildings, its teachers, its students, its library and philosophical apparatus are covered and secured by this codicil, and a large liberty is given to the Trustees to determine from year to year, to which of these objects and in what proportions they will appropriate the income of the fund intrusted to them.

In this codicil; as well as in his other gifts to the academy at Groton, Mr. Lawrence showed himself to be a wise and enlightened, as well as generous benefactor of the great cause of education, and as such his name deserves to be held in remembrance and honor.

The importance resulting from the permanent character of his donations to Lawrence Academy, is justly described by the Rev. Mr. Means in his discourse delivered before the Alumni of the school, at the jubilee held July 12th 1854. Speaking of Messrs. William and Amos Lawrence, as the benefactors of Groton Academy, he says "There was a singular difference in the character of these two brothers, and there is a similar difference in the results of their benefactions. I have reason personally to know that they conferred frequently and earnestly respecting the parts which they should severally perform in upbuilding this school. There was an emulation, but there was no selfishness, there was no difference of opinion; both loved the academy, wished to bless it and to make it a blessing; each desired



to accommodate the feelings of the other; each was unwilling to interfere with the other; each was ready to do what the other declined. Mr. William Lawrence was older in years, but he was later in commercial experience. He was firmer in health, and had less occasion, in the experience of bodily pain and dangerous illness than his brother, to lay to heart the injunction, "make unto yourselves friends of the unrighteous mammon, that when ye fail, they may receive you into everlasting habitations." But though he began later, in respect to the amount bestowed upon this school, he was not behind his brother. On the contrary, he was before him. He gave more; and more of what he gave remains to this day in a productive form. Out of more than forty-five thousand dollars provided for the academy by Mr. William Lawrence, forty thousand will remain in the hands of the Trustees, for purposes of instruction; while out of all that was given by Mr. Amos Lawrence, not one single cent was designed to be or now remains among the cash funds of the academy."

To William Lawrence then, belongs the credit of the endowment of the Lawrence Academy at Groton, with a cash fund of forty thousand dollars, guarded by wise provisions, which secure thirty thousand in perpetuity, while in the distribution of the income, they leave a large liberty of choice and discrimination to the Trustees. The wisdom and benevolence of his conduct in this noble benefaction to the cause of education, indicate the two simple elements of his character. He was a man of sound judgment, of strong practical common sense, and of a large and kindly heart; and one source of his wise and sound judgment was his pure heart. He had no selfish or sinister ends to accomplish, the desire to accomplish which so often darkens the conscience, bewilders and misleads the judgment. Undoubtedly he had that desire of success and accumulation, which naturally accompanies every man in the enterprises of trade and commerce, but this success was to be accomplished by an open, manly, straight-forward honesty. "There were no disguises, concealments, subterfuges, pretences, or pretensions about him; all was plain, simple, frank, open as the day to all the world." Not eaten up with an intense *personal* anxiety, accustomed to look at all matters in the light of their broad relations to the interests of the whole community, his mind was clear to discern that which was wise, right, best, and his heart free to love and pursue it. The profound declaration of Scripture, "out of the heart are the issues of life," found its fulfillment and illustration in him. A good heart, kind, tender, sympathizing, benevolent, strong in its affections, generous in its impulses, devout in its emotions, quickened and sanctified by a deep sentiment



of religious faith, reverence, and responsibility, this was the inspiring and controlling element of his character. A good heart gave him a clear head, a sound judgment, a wise discrimination. A good heart, deeply conscious of its responsibility to its maker, filled with a love of God that unfolded itself in love and good will to man, this made him pure as well as wise, his career honorable as well as successful, his life useful, his death peaceful, his memory to be revered and honored,—that “memory of the just which is blessed.”

It is as a simple act of justice to that memory that we put upon the pages of the American Journal of Education, this notice of one, who in his just appreciation of the importance of our New England academies, and in his wise and munificent endowment of one of these primary institutions of learning, has a strong claim to our grateful remembrance, as a faithful and efficient friend of the great cause of education, which we seek to promote. “Go thou and do likewise,” is the voice of instruction with which his example speaks to many a wealthy son of New England.

### III. LAWRENCE ACADEMY.

GROTON, MASS.

BY REV. CHARLES HAMMOND.

LAWRENCE ACADEMY was incorporated by the Legislature of Massachusetts, with the title of "GROTON ACADEMY," in an act which was passed September 25th, 1793. Its present name was conferred by the Legislature of 1846, in accordance with the wishes of the Trustees, in honor of two of its greatest benefactors, WILLIAM and AMOS LAWRENCE, who were natives of the town of Groton.

This Academy is one of the oldest schools bearing that name, in the state of Massachusetts. Prior to the war of the Revolution, it is not known that there were more than two academies in the state;—Dummer Academy, at Byfield, and Phillips Academy, at Andover. Leicester Academy was founded just after the war in 1784.

The motives which led to the founding of Groton Academy, were well set forth in the following extract from a speech made by the late Hon. Abbott Lawrence at the Jubilee Festival of Lawrence Academy, in 1854.

"About the year 1792, a want of education of a higher character, than could be obtained at the common district schools, was sensibly felt. The men who achieved our Independence were not unmindful of the education of their children. They were poor in purse, but rich in public spirit, justly believing that civil liberty could not be maintained without education, religion, and law. These veterans set themselves to work to lay the foundation of an Academy, which was accomplished after much trial and tribulation."

In furnishing a brief sketch of the history of this academy, it is proper at the outset to indicate the sources from whence we have derived the facts of our narrative. These are chiefly the history of Groton, by Caleb Butler, and the historical address of Rev. James Means, delivered at the festival to which we have already alluded.

Both these gentlemen were instructors in the academy for a longer time than any other head master; the former for nearly twelve years; the latter for a term of nearly seven years. Mr. Butler was Principal in the early part of the century, and was personally acquainted with nearly all the founders of the academy.

Mr. Means became connected with the school at the period of its No. 5.—[Vol. II, No. 1.]—4.

enlargement, and was intimately familiar with the plans and motives of its generous benefactors. Mr. Butler was long a Trustee after he resigned the Principalship, and was always a near resident to the academy till his death. He was, for these reasons, in a situation to be conversant with every event worthy of notice. We shall attempt to do but little more than to express briefly in our own words the facts gathered from these abundant and perfectly reliable sources.

It seems to have been well understood at the time when the founding of academies, was a part of the state policy of education, that no enterprise of the kind in any place, should receive the sanction of the Legislature by an act of incorporation, much less a state endowment, unless the inhabitants of such a locality, should first provide buildings suitable for the proposed seminary. When a sum sufficient to provide the requisite buildings was raised, then a charter was granted; and if the prospects of the infant seminary were encouraging, the patronage of the state was in due time bestowed.

The inhabitants of Groton raised by subscription the sum of three hundred and twenty-five pounds, for the erection of an academy structure. In aid of this project, a few shares were subscribed in Pepperell, an ancient precinct or parish of Groton.

With this sum, hardly \$1,100, the academy was built in 1793, and opened for school purposes in 1794. In order to aid this enterprise, the town of Groton voted that the town Treasurer should give his note for two hundred pounds, the interest of which should be annually paid, with the understanding that the principal should never be called for.\* This was a limited income on which to rest the foundations of an important institution of learning; and yet Harvard and Yale sprang into being from beginnings even less inconsiderable.

The charter was granted in 1793, but it was not till four years had passed away, that the aid of the state was received in the grant of a half township of Maine land. This township consisted of eleven thousand five hundred and twenty acres, and sold for fifty cents an acre. The price of tuition previous to 1795, was one shilling a week. It was raised in that year to twenty cents a week, and in 1810 to twenty five cents, at which rate it continued till a recent period.

Though the academy had no other endowment at first, except the meagre appropriation of \$40 per annum from the town treasury, yet the determination was from the outset, to have a school of a high grade. It was the wise policy of the state not to entrust the entire management of the affairs of academies to the towns where they were located; not so much because the finances of such schools

---

\* The town voted to withhold the appropriation after a few years.

would not be well managed, as because the danger was great, lest the local standard of education would be too low.

For this reason, undoubtedly, the charter required that a majority of the board of trust should be non-residents, and this too, at a time, when there were a large number of distinguished men, residents of Groton, most of which were deeply interested in the welfare of the rising seminary. This policy was the general policy of the state, at that time, and tended to place the academies as well as the colleges largely under the Trusteeship of the clergy, who had great influence over the people in all matters pertaining to education. They served as agents in securing patronage, for the school of which they were Trustees, and they were the best qualified to direct in regard to the best courses of instruction to be adopted in the new grade of schools founded by the Commonwealth. The history of every New England College and academy will verify the remark once made by President Day, of Yale, that "if ministers do not take care of the best interests of our higher seminaries of learning, then they will not be cared for."

If funds are wanting when the foundations of a new college or academy are laid, still the institution will thrive for a time, if it has a rich endowment in the high character of its earliest guardians and instructors. The abundant success which crowned the efforts of Trustees and teachers during the first twenty years of its history, is *a priori* evidence that able men guided the counsels and administration of Groton Academy during that period. This conclusion is confirmed at once, by a brief notice of the most distinguished of the clergymen and civilians, who served as Trustees prior to the beginning of the present century.

The following is a list of Trustees for that period, the first fifteen of which were the original corporators named in the charter :

Acc.			Exit.
1793	Hon. Oliver Prescott,	Groton,	1804
"	Rev. Daniel Chaplin, D. D.	"	1817
"	Rev. Labdiel Adams,	Lunenburg,	1801
"	Rev. Phineas Whitney,	Shirley,	1810
"	Rev. John Bullard,	Pepperell,	1821
"	Rev. William Emerson,	Harvard,	1801
"	Hon. Josiah Stearns,	Lunenburg	1811
"	Col. Henry Bloomfield,	Harvard,	1811
"	Hon. James Winthrop,	Cambridge,	1798
"	Col. Henry Woods,	Pepperell,	1804
"	Maj. Joseph Moors,	Groton,	1794

1793	Doct. Oliver Prescott, Jr.,	Groton,	1813
"	Hon. Samuel Dana,	"	1798
"	Hon. Timothy Bigelow,	"	1813
"	Aaron Brown, Esq.	"	1793
"	Thomas Gardner, Esq.	"	1793
1794	Samuel Lawrence, Esq.	"	1827
"	Hon. James Prescott,	Westford,	1794
1795	James Brazer, Esq.	Groton,	1818
1796	John Brazer, Esq.	Boston,	1796
"	Rev. Nathaniel Thayer, D. D.	Lancaster,	1803
1799	Joshua Longley, Esq.	Shirley,	1814

Hon. Oliver Prescott, and his son, both of which appear in the above list among the original members of the corporation, belonged to a family which has been illustrious in New England, both in the annals of heroism and literature. They were both liberally educated, both were physicians of great eminence and practice, and both were called to fill responsible official stations in the service of the state. Dr. Prescott, the elder, was a general officer in the war of the Revolution.

Rev. Dr. Chaplin, was the pastor of the first parish in Groton for nearly half a century. He was reputed to be an excellent scholar and was one of the leading divines of his day. Rev. Dr. Thayer, of Lancaster, was distinguished for his great personal excellence and influence among the people of his charge, through a long ministerial career.

Judge Dana, and Hon. Timothy Bigelow, were among the most distinguished lawyers of their day. The former was Chief Justice of the court of Common Pleas,—frequently a member of the Senate of Massachusetts, and three years President of that body. He was a Representative in Congress for one term. Mr. Bigelow was a frequent member of both branches of the State Legislature, and was for eleven years speaker of the House of Representatives.

Deacon Samuel Lawrence was a most estimable and useful citizen, and a constant friend to the seminary which was destined to bear his own name, through the benefactions of his sons, who imitated his example of earnest devotion to its interests according to his ability.

James Brazer, Esq., was a citizen of Groton, of great social influence. He was a man of wealth, according to the standard of his own times, and from his estate in accordance with his wishes, the first considerable benefaction to the academy was made in the legacy of his widow.

The following is a list of those who have held the office of Principal, with the dates of their appointment, and the places of their birth and graduation :

1794	Henry Moor, Londonderry, N. H.	Dartmouth.
1796	Rev. Timothy Williams, Woodstock, Ct.	Yale.
1797	Hon. Asahel Stearns, Lunenburg,	Harvard.
1798	Leonard Mellen, Esq., Cambridge,	Harvard.
1799	Hon. William M. Richardson, Pelham, N. H.	Harvard.
1802	Caleb Butler, Esq., " "	Dartmouth.
1810	Rev. Isaac Jones, Hopkinton,	Williams.
1811	Rev. Samuel Woodbury, Acworth, N. H.	Dartmouth.
1812	Caleb Butler, Esq., Pelham, N. H.	Dartmouth.
1815	Rev. Abel Conant, Milford, N. H.	Dartmouth.
1819	Ephraim Sherman, Esq., Sudbury,	Harvard.
1821	Rev. Eber Child, Thetford, Vt.	Dartmouth.
1823	Rev. David O. Allen, Princeton,	Amherst.
1824	Asa F. Lawrence, Esq., Groton,	Harvard.
1826	Elizur Wright, Esq., Hudson, Ohio,	Yale.
1828	Rev. George Beecher, Litchfield, Ct.	Yale.
1830	James Towner, Willsborough, N. Y.	Univ. Vt.
1836	Rev. Horace Herrick, Peacham, Vt.	Dartmouth.
1840	Rev. Ezekiel H. Barstow, Kingston, N. H.	Dartmouth.
1844	Rev. Moses H. Wells, Deerfield, N. H.	Dartmouth.
1845	Rev. James Means, Amherst, N. H.	Bowdoin.
1851	Rev. Mathew D. Gordon, <i>pro tem.</i> Scotland.	Middlebury.
1852	Rev. Wm. C. Dickinson, <i>pro tem.</i> L. Meadow.	Amherst.
1852	Rev. Charles Hammond, Union, Ct.	Yale.

The first Preceptor, Henry Moor, was employed two years, and was regarded as a good teacher. He died soon after his resignation. His salary was \$400 per annum. Until the accession of Mr. Means in 1845, all the incumbents of the office of Head Master were elected soon after graduation, and before they studied a profession.

With the exception of Mr. Butler, Mr. Towner, and Mr. Means, the term of service has never exceeded five years. Mr. Stearns, the third Preceptor, became distinguished as a lawyer in his practice at Chelmsford. He was Representative in Congress one term, and for twelve years Professor of Law in Harvard University.

Mr. Richardson became a lawyer of distinction in Groton, and was a Representative in Congress from 1811 to 1814. In 1816 he was appointed Chief Justice of the Superior Court of New Hampshire. He died in 1838, at Chester, N. H.

Mr. Allen, Preceptor in 1823, afterwards studied Divinity at Andover

and served as a missionary at Bombay twenty-six years. He received the degree of D. D., from Amherst College in 1853.

James Towner, Preceptor from 1830 to 1835, studied Divinity, and was licenced to preach, but was never ordained. He was regarded as an accomplished instructor. He died in Michigan City, Ind., March 2d, 1844.

There have been many excellent instructors among the great number employed, during the long period since the establishment of the academy, but we must limit our notices to two administrations, one among the earliest, the other recent in the history of the academy.

Caleb Butler is a name which always will be conspicuous in the history of Lawrence Academy, and of the town of Groton. He was chosen Principal in 1802, and succeeded his friend and fellow townsman, Mr. Richardson, who had served successfully a term of three years.

Mr. Butler soon became known as one of the best instructors of that period, and his school enjoyed a long season of uninterrupted prosperity. He was graduated at Dartmouth in 1800, with the first honors of his class, and ever after enjoyed the special confidence and regard of President Wheelock, of that Institution.

Few institutions have furnished more graduates, distinguished in every honorable calling and profession, than Groton Academy, during the first twenty five years of its history, and most of these were pupils of Mr. Butler. Among the college graduates of this period, we find the names of HON. HENRY A. BULLARD, HON. JOSEPH G. KENDALL, HON. ISAAC FLETCHER who were members of the House of Representatives in the Congress of the United States; of Hon. ETHER SHEPLEY, Senator of the United States from Maine, and afterwards Chief Justice of the same state; of HON. AMOS KENDALL, of the city of Washington; of HON. JOEL PARKER, Chief Justice of the state of New Hampshire, and now Professor of Law in Harvard University; of Rev. CALEB J. TENNEY, D. D., of Newport, Rhode Island, and afterwards of Wethersfield Conn., who was the valedictorian of the class of 1801, at Dartmouth, of which Daniel Webster was a member; of Rev. JAMES WALKER, D. D., President of Harvard University; of HON. LUTHER LAWRENCE, of Lowell,—and HON. JOHN P. BIGELOW, of Boston; of Rev. ANDREW BIGELOW, D. D., of Boston,—Rev. GEORGE G. INGERBOLL, D. D., Rev. J. D. FARNSWORTH,—Rev. RUFUS NUTTING, Professor in Western Reserve College, and Rev. WINTHROP BAILEY, tutor of Bowdoin College. During the same period, a large number of pupils were fitted for mercantile and other professions, some of whom have become hardly less distinguished than those who



entered college. Of these we can only mention the names of the five brothers of the Lawrence family. LUTHER,—was a graduate of Harvard, and a lawyer by profession for many years, but who afterwards turned his attention to manufacturing in the city of Lowell. ABBOTT,—was the founder of the Lawrence Scientific school at Cambridge, and Minister of the United States at the Court of St. James. AMOS and WILLIAM,—were the munificent benefactors of the academy which now bears their name, and of many other Literary Institutions—SAMUEL, a merchant in Boston—alone survives. A large number of ladies were educated at this period, several of whom in their station have become hardly less eminent than those of the other sex already noticed.

After his long and honorable career as an instructor, Mr. Butler spent the remainder of his life in the practice of his profession as a lawyer, and in various civic offices and employments. He was always interested in literary and scientific pursuits. During the last year of his life he read through the entire works of Horace, with all the Latin notes and Excursus of the Delphini edition—using constantly and critically, the standard edition of Doering, as a reference. The year previous he read Virgil entire, in the same thorough manner. He had not read Horace since his college days, more than half a century previous. In May, 1854, a few months previous to his death, he calculated the great eclipse of the sun, of that year, and made most careful preparations to observe that event. In July following, occurred the Jubilee Festival of Lawrence, in which he took the deepest interest, and in whose presence and address delivered on that occasion, the greatest interest was felt by all present. The old graduates were present in great numbers, to welcome their venerable instructor. The generation with whom he then was living, had never known him as a teacher, but only as a useful citizen, as the Historian of the town of Groton, and as the faithful legal adviser of the widow and the orphan, whose interests were often entrusted to his hands. But on that Jubilee festival, the great and honored of the land, came from distant places to visit the scenes of their early youth, and pay a tribute of respect to their early instructor.

So great had been the changes of the town in the lapse of fifty years, that one of the Alumni said there was nothing remaining but "Mount Wachusett in the distance, and Caleb Butler on the spot." Mr. Butler gave a most interesting speech at the dinner table, in which he presented in a striking manner, the "contrasts of the 'old times' and the new." At the close, he addressed a few valedictory words to his own pupils, who all rose up before him, to receive his

last benediction. Among them were the Hon. Abbott Lawrence, Hon. Amos Kendall, Rev. President Walker, Hon. Joel Parker, Hon. Mr. Bigelow, Rev. Dr. Bigelow, Mr. Samuel Lawrence, and very many others. "It was a touching sight," said Mr. Means, in his account of the festival, "to behold those persons, some of them so greatly distinguished, taking this respectful attitude before the gray-haired teacher of their early years."

A few days later Mr. Butler was permitted with his partner to celebrate their "Golden Wedding." In the month of September his fatal sickness was induced by an accidental fall from one of the fruit trees of his garden. In the early part of his sickness, before the apprehension of its fatal termination had been felt, he remarked that the lot of Horace, was his own, in being nearly killed by a similar accident, and quoted the imprecations of the poet in the third book of the Odes, against the tree which had so nearly taken the life of its owner. He died Oct. 7th, 1854, aged 79.

The funeral of Mr. Butler took place on one of the most beautiful days of autumn. A sermon on the occasion was preached by Rev. Crawford Nightingale, pastor of the first parish, which was published on the day of the Bi-centennial celebration of the town of Groton, Oct. 31st, 1855.

The accession of the Rev. James Means, to the office of Principal, in 1845, marks the beginning of a new financial era in the history of the institution. No teacher ever entered upon a new sphere of labor under more powerful stimulants to faithful effort than Mr. Means, and the success of a long and prosperous administration fully justified the selection of the Trustees in his appointment.

Mr. Means was a native of Amherst, N. H., a graduate of Bowdoin college, and of Andover seminary, and had been a settled pastor five years, at Concord, Massachusetts. For the first time in the history of the school, there was united in the office of the Preceptorship, the functions of an authorized minister of the gospel. It is well known that Dr. Arnold, of Rugby, deemed it of the utmost importance that the head master of a great public school, should for the sake of moral and religious considerations always be a preacher, and so deeply did he prize the advantage which the sacred office gave him as a moral teacher, that when the post of chaplain became vacant, he sought for the place, and through all his subsequent career fulfilled its daily duties, as well as the duties of preacher on the Sabbath, without compensation. The famous Rugby Chapel Sermons were the result in part, of his labors as a Christian teacher.

The connection of Mr. Means with the academy, continued till

August, 1852, and was then terminated by the resignation of his substitute, Mr. Gordon, on account of ill health, while he was himself in Europe, on leave of absence—"and too far away for any extension of his arrangements with the Trustees."

About the time Mr. Means was appointed Principal, commenced that period which he in his Jubilee address so fitly termed the "period of reward" and which succeeded as a "third stage" that long period of economy, which began with Mr. Richardson's administration, and had always continued, until the Lawrence benefactions relieved the institution from further embarrassment.

This period, as we have seen, was not unproductive of good, as the reward of faithful service on the part of the teachers and Trustees. The few thousands of capital given as a state endowment, were well invested. The first age when there were no proper endowments, Mr. Means aptly designated as "the period of faith."

Mr. Means was a near relative by marriage of Mr. Amos Lawrence, and he was made fully acquainted with, and entered heartily into all the plans of renovation and enlargement which had been formed by Mr. Lawrence in relation to the academy. The school buildings were greatly enlarged, the number of teachers was increased, the course of studies was extended, and a large library collected which now numbers over four thousand volumes.

When the first generation of Trustees and teachers had passed, the relative condition of Groton academy, both as to finances and literary rank were not equal to that of the first fifteen or twenty years of the present century. Though the funds were never ample, nor the course of studies extensive, or the amount of instruction great as compared with a first class academy of the present day, yet in the period just referred to, not so much was demanded of such an institution as was required twenty-five years later in consequence of the new impulse then given to the entire system of college education throughout the land, and especially in New England.

Andover, Exeter, the Boston Latin School, and a few other institutions, by reason of ample endowments, were able to keep pace with the onward progress of education. In the meantime the policy of the Commonwealth became entirely changed in respect to academies and colleges.

The patronage so liberally given at the beginning of the century, was withdrawn, and the common school system with its gradations alone received the sympathy of the state, while the theory gradually gained ground among the people, and was frequently advocated in the legislature, that the interests of the local schools sustained by

public tax, and the interests of the higher seminaries established and endowed for the general wants of the community, were in their nature diverse, and in their operations and results antagonistical to each other. Such a theory was disastrous to the welfare of schools of every grade, inasmuch as having a common end in view to subserve the public good, if any class in the entire system of instruction suffers, all the other departments of instruction must also suffer.

It is most evident that the continued operations of those causes of decline here indicated, would ultimately have reduced Groton academy to the present condition of very many of the ancient academies of Massachusetts, which once enjoyed the fostering care of the state, and were supported by the public patronage and sympathy, but which are now little more than local schools, having the same possible ends to accomplish as are embraced in the functions of what is called the high school, in the graded system of local public instruction.

The Lawrence benefactions were received most opportunely to interrupt the farther tendency to localization, and to restore to the institution once more the character of an ancient New England academy, by rendering it possible in the possession of ample funds that the demands of the public at large should be met in relation to a seminary established for universal, and not merely local purposes. Thus a great public want is supplied in adding one more seminary to that grade of schools intermediate between the public local schools and the colleges or universities. With the last class of institutions, a first class academy is in a state of close affiliation and inter-dependence, having a constitution and system of administration almost exactly similar.

To the abundant details in the historical sketches of Mr. Butler and Mr. Means, we must refer our readers for the particular benefactions which have been lavished on this highly favored institution.

We have already referred to the state endowment made in 1797, in the form of a grant of a half town-ship of Maine land. The fund arising from the sale of this land, amounted in 1825, to \$7,420. That year a legacy was received from Hannah Brazer, the widow of James Brazer, Esq., which subsequently added to the funds of the academy nearly \$3000.

The first donation of Amos Lawrence was made in 1838, and consisted of valuable books and philosophical apparatus. "From this time forward," says Mr. Means, "the gratitude of the board of Trustees, was not allowed to have rest. At first they were met by resolutions of thanks, but during my connection with the school, they became so incessant, that it was impossible to report them. Besides

the repairs of buildings the gift of apparatus and books, the deed of the Brazer estate (amounting with repairs to \$5,600,) the establishment of twelve scholarships at Bowdoin, Williams and Wabash colleges for students from this academy, it was my custom, at his request, to report to him the case of indigent students, whose wants he promptly supplied, and whenever I wished urgently for money to pay some teacher, he supplied it. A rough estimate which I made of his benefactions to this academy shows that he expended from twenty-two to twenty-five thousand dollars. And yet not a cent appeared in the productive capital of the Trustees. This was charity without ostentation. His brother William gave more than Amos, and more of that which he gave remains to this day in a productive form. Of more than forty-five thousand dollars provided for the academy by Mr. William Lawrence, forty thousand will remain in the hands of the Trustees for purposes of instruction, i. e., while out of all that was given by Mr. Amos Lawrence not one cent was designed to be or now remains among the cash funds of the academy."

In this connection Mr. Means quoted from the then unpublished correspondence of Mr. Amos Lawrence, the following most interesting extracts, which go to show the noble motives which influenced Mr. Amos Lawrence in the gifts he made to the school.

Of the library he says in one of his letters:

"I trust it will be second to no other in the country except Cambridge, and that the place will become a favorite resort of students of all ages, before another fifty years have passed away."

This library was entirely the gift of Mr. Lawrence, and the books were mostly selected by his own hand.

When he presented a cabinet of medals he wrote as follows:

"I present them to the Institution in the name of my grandsons, Francis William, and Arthur Lawrence, in the hope and expectation of implanting among their early objects of regard, this school, so dear to us brothers of the old race, and which was more dear to our honored father, who labored with his hands, and gave from his scanty means, in the beginning, much more in proportion than we are required to do, if we place it at the head of this class of institutions, by furnishing all it can want."

The principal benefactor of this academy, was Mr. William Lawrence. From the extract already quoted from Mr. Means' Jubilee Address, it appears that he gave, in the form of permanent funds, a sum which will amount to \$45,000, when the limit of accumulation has been reached.

Besides this large fund, he gave in 1846, the sum of \$5000, for

general purposes. With this sum, the Trustees were enabled to enlarge the academy buildings, to embellish the grounds, and to enclose the entire plot with a very substantial fence, the front side of which was constructed of iron, after a very beautiful pattern. From the avails of this gift, a suitable bell was also purchased for the Institution.

It is not necessary to enlarge respecting the benefactions of Mr. William Lawrence, since a tribute to his character and memory is paid in the present number of this Journal.

In relation to Mr. Amos Lawrence, the "Life and Correspondence," recently published by his son, William R. Lawrence, M. D., will furnish the most abundant illustrations of all that adorned the character of that most excellent lover of his race. Other literary institutions besides the academy of his native town, shared largely in the gifts lavished by his hand.

It is most earnestly desired that the illustrious example of William and Amos Lawrence may be imitated by men of wealth, in the endowment of academies and other higher seminaries of learning in our land.

Such endowments are ever-flowing streams of good to mankind. As memorials, they are more precious than monuments erected to honor great warriors and statesmen. The grateful scholars of New England, shall in every coming age, repeat the names of PHILLIPS, WILLISTON, and LAWRENCE, with "perpetual benedictions."

## V. MILTON ON EDUCATION.

---

To make this Journal the repository of the History and Literature of the great subject to which it is exclusively devoted, we shall enrich our pages from time to time with some of the most valuable contributions which have been made in past years by eminent scholars and educators, either in independent treatises, or occasional suggestions, for the improvement of systems, institutions or methods of education. With this view, and because of its large scope and generous spirit, and not because its details are of immediate use, we republish the TRACTATE of John Milton, the most resplendent name for genius and culture, in prose and poetry, in English literature, on the reforming of education, which he deemed "one of the greatest and noblest designs that can be thought on"—"the only genuine source of political and individual liberty, the only true safeguard of states, the bulwark of their prosperity and renown." The design of this essay—first published amid the revolutionary upbreak of English society, in the year 1644—was not to unfold a scheme of general education, necessarily limited and superficial in its course of study, but to map out the vast domain of literature and science, which pupils of ample leisure and fortune, and of the highest industry, and emulative ardor, with teachers of the best learning and genius, could successfully traverse and master. Its aim was far beyond anything attained at that day by the university scholars of England, and its details anticipates reforms in the direction of practical science, which after the lapse of two hundred years, are now likely to be generally introduced into the educational schemes of that country. Its diligent perusal can not but inflame any ingenuous mind "with a love of study and the admiration of virtue," and its precepts faithfully followed, can not but fit men "to perform justly, skilfully, and magnanimously all the offices, both private and public, of peace and war." We can not more appropriately introduce this essay than by an account of Milton's education, principally in his own vigorous and eloquent prose.

John Milton was born in London on the 9th of December, 1608. His father was a man of education and property, and gave his son every facility for acquiring a consummate education. To his mother's excellence of character and deeds of charity, Milton bears willing



testimony in his *second* eloquent defence of the people of England. His early training was partly under a private tutor, named Thomas Young, a man of learning and piety, who inspired his pupil with respect and affection; and partly in one of the public schools of London, that of St. Paul's, then presided over by Alexander Gill. On the 12th of February he entered a pensioner, [not dependent on the foundation for support, but paid for his board and tuition] of Christ's College, in the University at Cambridge, being sixteen years and two months old. After a residence of seven years, devoted to literature and the arts, as then taught, he left in the year 1632, having taken in regular course, the two degrees of bachelor and master of arts.\*

On quitting the university, Milton took up his abode with his father, who had purchased a property in the village of Horton, in Buckinghamshire, devoting himself to the most thorough and comprehensive course of reading—"beholding the bright countenance of Truth in the quiet and still air of delightful studies," and embodying his observations of nature and his pure and beautiful imaginings into the immortal verse of *L'Allegro* and *Il Penseroso*, of *Lycidas* and *Comus*; and above all, moulding and consolidating his own character and life into "a true poem; that is, a composition and pattern of the best and honorablest things."

Of this period of his life, in his apology, Milton says,—“My morning haunts are, where they should be, at home, not sleeping, or concocting the surfeits of an irregular feast, but up and stirring; in winter, often ere the sound of any bell awake men to labor, or to devotion; in summer, as oft with the bird that first rouses, or not much tardier; to read good authors, or cause them to be read, till the attention be weary, or memory have it full fraught; then with useful and generous labors, preserving the body's health and hardiness, to render lightsome, clear, and not lumpish obedience to the mind, to religion, and our country's liberty, when it shall require firm hearts in sound bodies to stand and cover their stations.” Milton made no pretension to a life without “some recreating intermission of labor and serious things,”—but sought in cheerful conversation, and with the harmonies

\* To one of his opponents, who asserted that he had been “vomited out of the University after having spent there a riotous youth, he replied in his “Apology for Smectymnus;”—“It hath given me an apt occasion to acknowledge publicly, with all grateful mind the more than ordinary favor and respect which I found, above any of my equals, at the hands of those courteous and learned men, the Fellows of the College, wherein I spent some years, who at my parting, after I had taken two degrees, as the manner is signified, many ways, how much better it would content them if I could stay, as by many letters full of kindness and loving respect, both before that time, and long after, I was assured of their singular good affection toward me.”

of music heard or performed, and in lofty fable and romance, to retouch his spirit to fresh issues, and prepare himself for harder tasks.

"Next—for hear me out now, readers, that I may tell whither my younger feet wandered,—I betook me among those lofty fables and romances which recount in solemn cantos the deeds of knighthood founded by our victorious kings, and from hence had in renown over all Christendom. There I read, in the oath of every knight, that he should defend to the expense of his best blood, or even of his life, if it so befall him, the honor and chastity of virgin or matron; from whence even then I learned what a noble virtue chastity sure must be, to the defence of which so many worthies, by such dear adventure of themselves had sworn. Also this my mind gave me, that every free and gentle spirit, without that oath, ought to be born a knight, nor needed to expect the gilt spur, or the laying a sword upon his shoulder to stir him up, both by his counsel and his arms, to secure and protect the weakness of attempted chastity;" and then those books, read in hours of recreation, "proved to him so many incitements to the love and observation of virtue." But his strong protection against the seductions of vice was not in the laureat fraternity of poets, or the shady spaces of philosophy, but his early home religious culture. "Last of all,—not in time, but as perfection is last, that care was always had of me, with my earliest capacity, not to be negligently trained in the precepts of the Christian religion."

But his education was not yet complete. On the death of his mother, he visited the continent, and especially Italy, "the seat of civilization, and the hospitable domicile of every species of erudition." In a tour of fifteen months, he made the personal acquaintance of several men of genius, "whose names the world will not willingly let die;" among them, Grotius, and Galileo; and was everywhere received by men of learning, on a footing of equality, which only great conversational powers and sound scholarship could sustain. Of this portion of his life, we fortunately have a brief record from his own pen in reply to some utterly unfounded charges of his unscrupulous assailants, both as to his motives for travel, and his manner of life while abroad.

"On my departure, the celebrated Henry Wooston, who had long been king James' ambassador at Venice, gave me a signal proof of his regard, in an elegant letter which he wrote, breathing not only the warmest friendship, but containing some maxims of conduct which I found very useful in my travels. The noble Thomas Scudamore, king Charles' ambassador, to whom I carried letters of recom-

mentation, received me most courteously at Paris. His lordship gave me a card of introduction to the learned Hugo Grotius, at that time ambassador from the Queen of Sweden to the French court: whose acquaintance I anxiously desired, and to whose house I was accompanied by some of his lordship's friends. A few days after, when I set out for Italy, he gave me letters to the English merchants on my route, that they might show me any civilities in their power.

Taking ship at Nice, I arrived at Genoa, and afterwards visited Leghorn, Pisa, and Florence. In the latter city, which I have always more particularly esteemed for the elegance of its dialect, its genius and its taste, I stopped about two months, when I contracted an intimacy with many persons of rank and learning, and was a constant attendant at their literary parties; a practice which prevails there, and tends so much to the diffusion of knowledge and the preservation of friendship.

No time will ever abolish the agreeable recollections which I cherish of Jacob Gaddi, Carolo Dati, Cultellero, Bonomothai, Clementillo, Francisco, and many others.

From Florence I went to Siena, thence to Rome, where, after I had spent about two months in viewing the antiquities of that renowned city, where I experienced the most friendly attentions from Lucas Holstein, and other learned and ingenious men, I continued my route to Naples. There I was introduced by a certain recluse, with whom I had traveled from Rome, to John Baptista Manso, Marquis of Villa, a nobleman of distinguished rank and authority, to whom Torquato Tasso, the illustrious poet, inscribed his book on friendship.

During my stay he gave me singular proofs of his regard; he himself conducted me around the city, and to the palace of the viceroy: and more than once paid me a visit at my lodgings. On my departure he gravely apologized for not having shown me more civility, which he said he had been restrained from doing, because I had spoken with so little reserve on matters of religion. When I was preparing to pass over into Sicily and Greece, the melancholy intelligence which I received of the civil commotions in England, made me alter my purpose, for I thought it base to be traveling for amusement abroad, while my fellow citizens were fighting for liberty at home. While I was on my way back to Rome, some merchants informed me that the English Jesuits had formed a plot against me, if I returned to Rome, because I had spoken too freely on religion; for it was a rule which I laid down to myself in those places, never to first begin any conversation on religion; but if any questions were put to me concerning my faith, to declare it without reserve or fear. I never-

theless, returned to Rome. I took no steps to conceal either my person or my character; and for about the space of two months I again openly defended, as I had done before, the reformed religion, in the very metropolis of popery. By the favor of God, I got safe back to Florence, where I was received with as much affection as if I had returned to my native country. There I stopped as many months as I had done before, except that I made an excursion for a few days to Lucca; and, crossing the Apenines, passed through Bologna and Ferrara to Venice. After I had spent a month surveying the curiosities of this city, and had put on board the ship the books which I had collected in Italy, I proceeded through Verona and Milan and along the Leman lake to Geneva.

The mention of this city brings to my recollection the slandering More, and makes me again call the Deity to witness, that in all those places in which vice meets with so little discouragement, and is practiced with so little shame, I never once deviated from the path of integrity and virtue, and perpetually reflected that, though my conduct might escape the notice of men, it could not elude the inspection of God. At Geneva I held daily conferences with John Deodati, the learned professor of Theology. Then pursuing my former route through France, I returned to my native country, after an absence of one year and about three months: at the time when Charles having broken the peace, was renewing what is called the Episcopal war with the Scots, in which the royalists being routed in the first encounter, and the English being universally and justly disaffected, the necessity of his affairs at last obliged him to convene a parliament. As soon as I was able I hired a spacious house in the city for myself and my books; where I again with rapture renewed my literary pursuits, and where I calmly awaited the issue of the contest, which I trusted to the wise conduct of Providence, and to the courage of the people."

Thus equipped by genius, "the inspired gift of God rarely vouchsafed, but yet to some in every nation," by learning at once elegant and profound, and by travel, under the most favorable opportunities of studying works of art, and of intercourse with refined society, and with aspirations of the most honorable achievements for the good of his race, and the glory of God, Milton did not feel it below his position or his hopes to become a teacher, to compose school-books, and to employ his great abilities in pointing out "the right path of a virtuous and noble education,—laborious indeed at the first ascent, but else so smooth, so green, so full of goodly prospect, and melodious sounds on every side, that the harp of Orpheus was not more charming."

What he might have accomplished in his own school, if he had converted it into an "ACADEMY," such as he described in his Tractate, which was to be "at once both school and university for a complete and generous education," except in mere professional training; had he devoted himself unreservedly, for any considerable time, to this work, with text-books of his own composing,\* and with pupils† capable of receiving his instruction with the same acuteness of wit and apprehension, the same industry and thirst after knowledge as the instructor was imbued with," is now only left to conjecture. Apart from the direct fruit of his teaching, in giving to his country a succession of well-trained youth, a portion, at least, imbued with his own ingenuous and noble ardor, "inflamed with the love of learning and the admiration of virtue, and stirred up with high hopes of living to be brave men and worthy patriots, dear to God, and famous to all ages,"—his example would indirectly have elevated the office of educator of the young in public estimation, and demonstrated the wisdom of securing for it the best talent and highest culture of the community. But the times called for such talents and scholarship as he possessed, in other walks less retired and peaceful; and, "when God commands to take the trumpet and blow a dolorous or a jarring blast, it lies not in man's will what he shall say, or what he shall conceal." And, he did take the trumpet, and, in defence of the people of England, and of their right to institute a republican government, and of the liberty of the press, and of conscience in matters of religion, against prelates, priests, and kings, and their hirelings, he blew a blast, again and again, "of which all Europe rang, from side to side." And, although it was his lot to fall on "evil times and evil tongues,"—to see "the good old cause" of the commonwealth shipwrecked, and every species of licentiousness reft in like a flood over the land which he would gladly have made to smile with the triumphs of temperance, frugality, knowledge, and liberty, yet, not bating one jot of heart or hope, in his blindness and disappointment, he addressed himself to the achievement of his great poem, the PARADISE LOST.

Dr. Johnson, in his Life of Milton, with that spirit of depreciation which breathes throughout his notice of Milton's opinions, character and life, and which was prompted by his hatred of the great poet's religious and political sentiments, makes the following remarks on the educational labors of our author.

"Let not our veneration for Milton forbid us to look with some degree

\* Milton was the author of a Latin Grammar, a Treatise on Logic, and a Latin Lexicon.

† This is the language of one of his pupils, who adds that such teaching, with the right sort of youth, would have produced "prodigies of wit [mind] and learning."

of merriment on great promises and small performance, on the man who hastens home, because his countrymen are contending for their liberty, and, when he reaches the scene of action, vapors away his patriotism in a private boarding-school. This is the period of his life from which all his biographers seem inclined to shrink. They are unwilling that Milton should be degraded to a school-master; but, since it cannot be denied that he taught boys, one finds out that he taught for nothing, and another that his motive was only zeal for the propagation of learning and virtue; and, all tell what they do not know to be true, only to excuse an act which no wise man will consider as, in itself, disgraceful. His father was alive; his allowance was not ample, and he supplied its deficiencies by an honest and useful employment.

It is told that, in the art of education, he performed wonders; and, a formidable list is given of the authors, Greek and Latin, that were read in Aldergate street by youth between ten and fifteen or sixteen years of age. Those who tell or receive these stories should consider that nobody can be taught faster than he can learn. The speed of the horseman must be limited by the power of the horse. Every man that has ever undertaken to instruct others can tell what slow advances he has been able to make, and how much patience it requires to recall vagrant inattention, to stimulate sluggish indifference, and to rectify absurd misapprehension.

The purpose of Milton, as it seems, was to teach something more solid than the common literature of schools, by reading those authors that treat of physical subjects: such as the Georgick, and astronomical treatises of the ancients. This was a scheme of improvement which seems to have busied many literary projectors of that age. Cowley, who had more means than Milton of knowing what was wanting to the embellishments of life, formed the same plan of education in his imaginary college.

But, the truth is, that the knowledge of external nature, and the sciences which that knowledge requires or includes, are not the great or the frequent business of the human mind. Whether we provide for action or conversation, whether we wish to be useful or pleasing, the first requisite is the religious and moral knowledge of right and wrong; the next is an acquaintance with the history of mankind, and with those examples which may be said to embody truth, and prove by events the reasonableness of opinions. Prudence and Justice are virtues and excellencies of all times and of all places; we are perpetually moralists, but we are geometricians only by chance. Our intercourse with intellectual nature is necessary; our speculations upon



matter are voluntary, and at leisure. Physiological learning is of such rare emergency that one may know another half his life, without being able to estimate his skill in hydrostatics or astronomy; but, his moral and prudential character immediately appears.

Those authors, therefore, are to be read at schools that supply most axioms of prudence, most principles of moral truth, and most materials for conversation; and, these purposes are best served by poets, orators, and historians.

Let me not be censured for this digression, as pedantic or paradoxical; for, if I have Milton against me, I have Socrates on my side. It was his labor to turn philosophy from the study of nature to speculations upon life; but, the innovators whom I oppose are turning off attention from life to nature. They seem to think that we are placed here to watch the growth of plants, or the motions of the stars. Socrates was rather of opinion that what we had to learn was, how to do good, and avoid evil.

*Oὐκ ἐστὶν ἐν μαθηματικῇ χάρις ἀνθρώποις ἐστὺν αὖ.*

Of institutions, we may judge by their effects. From this wonder-working academy, I do not know that there ever proceeded any man very eminent for knowledge: its only genuine product, I believe, is a small history of poetry, written in Latin, by his nephew, Philips, of which, perhaps, none of my readers has ever heard.\*

That in his school, as in every thing else which he undertook, he labored with great diligence, there is no reason for doubting. One part of his method deserves general imitation. He was careful to instruct his scholars in religion. Every Sunday was spent upon theology; of which he dictated a short system, gathered from the writers that were then fashionable in the Dutch universities.

He set his pupils an example of hard study and spare diet; only now and then he allowed himself to pass a day of festivity and indulgence with some gay gentlemen of Gray's Inn."

To these disparaging remarks we add a few sensible comments, by Rev. John Mitford, in his elegantly written life, prefixed to Pickering's Aldine edition of Milton's Poetical Works.

"The system of education which he adopted was deep and comprehensive; it promised to teach science with language, or rather, to make the study of languages subservient to the acquisition of scientific knowledge. Dr. Johnson has severely censured this method of instruction, but with arguments that might not unsuccessfully be met.

\* We may be sure, at least, that Dr. Johnson had never seen the book he speaks of; for it is entirely composed in English, though its title begins with two Latin words, "Theatrum Poetarum; or, a complete Collection of the Poets, &c.," a circumstance that probably misled the biographer of Milton.



The plan recommended by the authority of Milton seems to be chiefly liable to objection, from being too extensive; and, while it makes authors of all ages contribute to the development of science, it, of course, must reject that careful selection, which can alone secure the cultivation of the taste. We may also reply to Johnson that, although all men are not designed to be astronomers, or geometricians, a knowledge of the principles on which the sciences are built, and the reasonings by which they are conducted, not only forms the most exact discipline which the mind can undergo, giving to it comprehension and vigor; but, is the only solid basis on which an investigation of the laws of nature can be conducted, or those arts improved that tend to the advantage of society, and the happiness of mankind.

Johnson says, we are not placed here to watch the planets, or the motion of the stars, but to do good. But, good is done in various ways, according to opportunities offered, and abilities conferred; a man whose natural disposition, or the circumstances of whose education lead to pursue astronomical discoveries, or the sublime speculations of geometry, is emphatically doing good to others, as he is extending the boundaries of knowledge, and to himself, as he is directing the energies of his mind to subjects of the most exalted contemplation."

Having, in the foregoing extract from Dr. Johnson, introduced an ungenerous fling of that great but prejudiced writer against the patriotism of JOHN MILTON, because, in the absence of any other opportunity of being equally useful to the cause in which his heart was enlisted, and until he was summoned by the parliament of England and its great Protector, "to address the whole collective body of people, cities, states, and councils of the wise and eminent, through the wide expanse of anxious and listening Europe," he saw fit to employ his great abilities in illustrating, by pen and example, the true principles and method of a generous and thorough education, "the only genuine source of political and individual liberty,—the only true safeguard of states," and to defend the cause of civil and religious freedom by his publications,—we will let the great champion of the commonwealth of England speak for himself, and refresh the patriotism of our own times by a few of his burning words, uttered over two hundred years ago in his "*Defensio Secunda pro Populo Anglicano*."

"But against this dark array of long received opinions, superstitions, obloquy, and fears, which some dread even more than the enemy himself, the English had to contend; and all this under the light of better information, and favored by an impulse from above, they overcame with such singular enthusiasm and bravery, that, great as were the numbers engaged in the contest, the grandeur of conception and loftiness of spirit which were universally displayed, merited for each individual more than a mediocrity of fame; and Britain, which was formerly styled

the hot bed of tyranny, will hereafter deserve to be celebrated for endless ages, as a soil most genial to the growth of liberty. During the mighty struggle, no anarchy, no licentiousness was seen; no illusions of glory, no extravagant emulation of the ancients inflamed them with a thirst for ideal liberty; but the rectitude of their lives, and the sobriety of their habits, taught them the only true and safe road to real liberty, and they took up arms only to defend the sanctity of the laws and the rights of conscience.

Relying on the divine assistance, they used every honorable exertion to break the yoke of slavery; of the praise of which, though I claim no share to myself, yet I can easily repel any charge which may be adduced against me, either of want of courage or want of zeal. For though I did not participate in the toils or dangers of the war, yet I was at the same time engaged in a service not less hazardous to myself, and more beneficial to my fellow citizens, nor, in the adverse turns of our affairs, did I ever betray any symptoms of pusillanimity and dejection, or show myself more afraid than became me of malice or of death; for since from my youth I was devoted to the pursuits of literature, and my mind had always been stronger than my body, I did not court the labors of a camp, in which any common person would have been of more service than myself, but resorted to that employment in which my exertions were likely to be of most avail. Thus, with the better part of my frame I contributed as much as possible to the good of my country, and to the success of the glorious cause in which we were engaged; and I thought if God willed the success of such glorious achievements, it was equally agreeable to his will that there should be others by whom those achievements should be recorded with dignity and elegance; and that the truth which had been defended by arms, should also be defended by reason, which is the best and only legitimate means of defending it. Hence, while I applaud those who were victorious in the field, I will not complain of the province which was assigned me, but rather congratulate myself upon it and thank the Author of all good for having placed me in a station which may be an object of envy to others rather than of regret to myself.

I am far from wishing to make any vain or arrogant comparisons, or to speak ostentatiously of myself; but, in a cause so great and glorious, and particularly on an occasion when I am called by the general suffrage to defend the very defenders of that cause, I can hardly refrain from assuming a more lofty and swelling tone than the simplicity of an exordium may seem to justify: and as much as I may be surpassed in the powers of eloquence and copiousness of diction, by the illustrious orators of antiquity, yet the subject of which I treat was never surpassed in any age, in dignity or in interest. It has excited such general and such ardent expectation, that I imagine myself not in the forum or on the rostra, surrounded only by the people of Athens or of Rome, but about to address in this as in my former defence, the whole collective body of people, cities, states, and councils of the wise and eminent, through the wide expanse of anxious and listening Europe. I seem to survey, as from a towering height, the far extended tracts of sea and land, and innumerable crowds of spectators, betraying in their looks the liveliest and sensations the most congenial with my own. Here I behold the stout and manly prowess of the German, disdaining servitude; there the generous and lively impetuosity of the French; on this side, the calm and stately valor of the Spaniard; on that, the composed and wary magnanimity of the Italian. Of all the lovers of liberty and virtue, the magnanimous and the wise, in whatever quarter they may be found, some secretly favor, others openly approve; some greet me with congratulation and applause; others who had long been proof against conviction, at last yield themselves captive to the force of truth. Surrounded by congregated multitudes, I now imagine that, from the columns of Hercules to the Indian Ocean, I behold the nations of the earth recovering that liberty which they so long had lost; and that the people of this island are transporting to other countries a plant of more beneficial qualities, and more noble growth than that which Triptolemus is reported to have carried from region to region; that they are disseminating the blessings of civilization and freedom among cities, kingdoms, and nations.<sup>71</sup>

In further notice of the charges against himself, and especially that his loss of sight was a judgment for using his eyes in writing against

the divine rights of kings, and in defence of the people of England for dethroning and beheading their monarch, he thus speaks :

"Respecting my blindness ; \* \* \* I must submit to my affliction. It is not so wretched to be blind, as it is not to be capable of enduring blindness. But why should I not endure a misfortune which it behoves every one to be prepared to endure, if it should happen ; which may, in the common course of things, happen to any man ; and which has been known to happen to the most distinguished and virtuous persons in history. Shall I mention those wise and ancient bards, whose misfortunes the gods are said to have compensated by superior endowments, and whom men so much revered that they chose rather to impute their want of sight to the injustice of heaven than to their own want of innocence or virtue ? [After citing the virtues of Tiresias, Timoleon, Appian Claudius, Metellus, the incomparable Doge Dandolo, and the patriarch Isaac—] Did not our Saviour himself clearly declare that that poor man whom he restored to sight had not been born blind, either on account of his own sins, or of the sins of his progenitors ? and with respect to myself, though I have accurately examined my conduct, and scrutinized my soul, I call thee, O God, the searcher of hearts, to witness, that I am not conscious, either in the more early, or in the later periods of my life, of having committed any enormity which might deservedly have marked me out as a fit object for such calamitous visitation. But since my enemies boast that this affliction is only a retribution for the transgressions of my pen, I again invoke the Almighty to witness, that I never, at any time, wrote any thing which I did not think agreeable to truth, to justice and to piety. This was my persuasion then, and I feel the same persuasion now. Nor was I prompted to such exertions by the influence of ambition, by the lust of lucre or of praise ; it was only the conviction of duty and the feeling of patriotism, a disinterested passion for the extension of civil and religious liberty.

Thus, therefore, when I was publicly solicited to write a reply to the defence of the royal cause, when I had to contend with the pressure of sickness, and with the apprehension of soon losing the sight of my remaining eye, and when my medical attendants clearly announced that if I did engage in the work, it would be irreparably lost, their premonitions caused no hesitation and inspired no dismay. My resolution was unshaken, though the alternative was the loss of my sight, or the desertion of duty. Let, then, the calumniators of the divine goodness cease to revile, or to make me the object of their superstitious imaginations. Let them consider that my situation, such as it is, is neither the object of my shame or of my regret ; that I am not depressed by any sense of the divine displeasure, and that in the place and the strength which have been infused into me from above, I have been able to do the will of God ; that I oftener think on what he hath bestowed than on what he hath withheld, and that in my consciousness of rectitude I feel a treasured store of tranquility and delight.

But if the choice were necessary, I would prefer my blindness to that of my adversaries ;—theirs is a cloud spread over the mind which darkens both the light of reason and conscience ;—mine keeps from my view only the colored surfaces of things, while it leaves me at liberty to contemplate the beauty and stability of virtue and truth. There is, as the apostle has remarked, a way to strength through weakness. Let me be the most feeble creature alive, as long as my feebleness seems to invigorate the energies of my rational and immortal spirit ; as long as in that obscurity in which I am enveloped, the light of the divine presence more clearly shines,—then, in proportion as I am weak, I shall be invincibly strong ; and in proportion as I am blind, I shall more clearly see. O, that I may be protected by feebleness and irradiated by obscurity ! And indeed, in my blindness I enjoy, in no inconsiderable degree, the favor of the Deity, who regards me with more tenderness as I am able to behold nothing but himself ! Alas for him who insults me, who maligns and merits public execration ! For the divine law not only shields me from injury, but almost renders me too sacred to attack ; not, indeed, so much from the privation of sight, as from the overshadowing of those heavenly wings which seem to have occasioned this obscurity, and which, when occasioned, he is wont to illuminate with an interior light more precious and more pure. To this I ascribe the more tender assiduities of my friends, their soothing attentions, their kind visits, their reverential observances. Nor do persons of prin-

dipal distinction suffer me to be bereaved of comfort, when they see me bereaved of sight amid the exertions which I made, the zeal which I showed, and the dangers which I run for the liberty which I love. They do not strip me of the badge of honor which I have once worn; they do not deprive me of the places of public trust to which I have been appointed, nor do they abridge my salary or emoluments. Thus, while both God and man unite in solacing me under the height of my affliction, let no one lament my loss of sight in so honorable a cause!"

After paying an eloquent tribute of gratitude and praise to Cromwell, Bradshaw, Fleetwood, Lambert, Desborough, Overton, Whitlocke, Lawrence, and others who distinguished themselves and served their country by their exertions in the senate and in the field, Milton closes with advice worthy to be held in everlasting remembrance with the Farewell Address of George Washington.

"To these men, whose talents are so splendid, and whose worth has been so thoroughly tried, you would, without doubt, do right to trust the protection of our liberties; nor would it be easy to say to whom they might more safely be entrusted. Then, if you leave the church to its own government, and relieve yourself and the other public functionaries from a charge so onerous, and so incompatible with your functions; and will no longer suffer two powers, so different as the civil and the ecclesiastical, to commit fornication together, and by their mutual and delusive aids in appearance to strengthen, but in reality to weaken, and finally to subvert each other; if you shall remove all power of persecution out of the church, (but, persecution will never cease, so long as men are bribed to preach the gospel by a mercenary salary, which is forcibly extorted, rather than gratuitously bestowed, which serves only to poison religion and to strangle truth,) you will then effectually have cast those money-changers out of the temple, who do not merely truckle with doves but with the Dove itself, with the Spirit of the Most High. Then, since there are often in a republic men who have the same itch for making a multiplicity of laws, as some poetsasters have for making many verses, and, since laws are usually worse in proportion as they are more numerous, if you shall not enact so many new laws as you abolish old, which do not operate so much as warnings against evil, as impediments in the way of good; and, if you shall retain only those which are necessary, which do not confound the distinctions of good and evil, which, while they prevent the frauds of the wicked, do not prohibit the innocent freedoms of the good, which punish crimes, without interdicting those things which are lawful only on account of the abuses to which they may occasionally be exposed. For, the intention of laws is to check the commission of vice; but, liberty is the best school of virtue, and affords the strongest encouragements to the practice. Then, if you make a better provision for the education of our youth than has hitherto been made, if you prevent the promiscuous instruction of the docile and the indocile, of the idle and the diligent, at the public cost, but reserve the rewards of learning for the learned, and of merit for the meritorious. If you permit the free discussion of truth, without any hazard to the author, or any subjection to the caprices of an individual, which is the best way to make truth flourish and knowledge abound, the censure of the half-learned, the envy, the pusillanimity, or the prejudice which measures the discoveries of others, and, in short, every degree of wisdom, by the measure of its own capacity, will be prevented from doling out information to us according to their own arbitrary choice. Lastly, if you shall not dread to hear any truth, or any falsehood, whatever it may be, but if you shall least of all listen to those who think that they can never be free till the liberties of others depend on their caprice, and who attempt nothing with so much zeal and vehemence as to fetter, not only the bodies but the minds of men, who labor to introduce into the state the worst of all tyrannies, the tyranny of their own depraved habits and pernicious opinions; you will always be dear to those who think not merely that their own sect or faction, but that all citizens, of all descriptions, should enjoy equal rights and equal laws. If there be any one who thinks that this is not liberty enough, he appears to me to be rather inflamed with the lust of ambition or of anarchy than with the love of a genuine and well-regulated liberty; and particularly, since the circumstances of

the country, which has been so convulsed by the storms of faction, which are yet hardly still, do not permit us to adopt a more perfect or desirable form of government.

For, it is of no little consequence, O citizens, by what principles you are governed, either in acquiring liberty, or in retaining it when acquired. And, unless that liberty, which is of such a kind as arms can neither procure nor take away, which alone is the fruit of piety, of justice, of temperance, and unadulterated virtue, shall have taken deep root in your minds and hearts, there will not long be wanting one who will snatch from you by treachery what you have acquired by arms. War has made many great whom peace makes small. If, after being released from the toils of war, you neglect the arts of peace, if your peace and your liberty be a state of warfare, if war be your only virtue, the summit of your praise, you will, believe me, soon find peace the most adverse to your interests. Your peace will be only a more distressing war; and, that which you imagined liberty, will prove the worst of slavery. Unless, by the means of piety, not frothy and loquacious, but operative, unadulterated, and sincere, you clear the horizon of the mind from those mists of superstition which arise from the ignorance of true religion, you will always have those who will bend your necks to the yoke, as if you were brutes, who, notwithstanding all your triumphs, will put you up to the highest bidder, as if you were mere booty made in war; and, will find an exuberant source of wealth in your ignorance and superstition. Unless you will subjugate the propensity to avarice, to ambition, and sensuality, and expel all luxury from yourselves and from your families, you will find that you have cherished a more stubborn and intractable despot at home than you ever encountered in the field; and, even your very bowels will be continually teeming with an intolerable progeny of tyrants. Let these be the first enemies whom you subdue; this constitutes the campaign of peace; these are triumphs, difficult, indeed, but bloodless; and far more honorable than those trophies which are purchased only by slaughter and by rapine. Unless you are victors in this service, it is in vain that you have been victorious over the despotic enemy in the field. For, if you think that it is a more grand, a more beneficial, or a more wise policy, to invent subtle expedients for increasing the revenue, to multiply our naval and military force, to rival in craft the ambassadors of foreign states, to form skillful treaties and alliances, than to administer unpolluted justice to the people, to redress the injured, and to succor the distressed, and speedily to restore to every one his own, you are involved in a cloud of error; and, too late, will you perceive, when the illusion of those mighty benefits has vanished, that, in neglecting these, which you now think inferior considerations, you have only been precipitating your own ruin and despair. The fidelity of enemies and allies is frail and perishing, unless it be cemented by the principles of justice; that wealth and those honors, which most covet, readily change masters; they forsake the idle, and repair where virtue, where industry, where patience flourish most. Thus nation precipitates the downfall of nation; thus, the more sound part of one people subverts the more corrupt, thus you obtained the ascendant over the royalists. If you plunge into the same depravity, if you imitate their excesses, and hanker after the same vanities, you will become royalists as well as they, and liable to be subdued by the same enemies, or by others in your turn; who, placing their reliance on the same religious principles, the same patience, the same integrity and discretion which made you strong, will deservedly triumph over you who are immersed in debauchery, in the luxury and the sloth of kings. Then, as if God was weary of protecting you, you will be seen to have passed through the fire, that you might perish in the smoke; the contempt which you will then experience will be great as the admiration which you now enjoy; and, what may in future profit others, but can not benefit yourselves, you will leave a salutary proof what great things the solid reality of virtue and of piety might have effected, when the mere counterfeit and varnished resemblance could attempt such mighty achievements, and make such considerable advances towards the execution. For, if either, through your want of knowledge, your want of constancy, or your want of virtue, attempts so noble, and actions so glorious, have had an issue so unfortunate, it does not, therefore, follow, that better men should be either less daring in their projects or less sanguine in their hopes. But, from such an abyss of corruption into which you so readily fall, no one, not even Cromwell himself, nor a whole nation of Brutuses, if they were alive, could deliver you if they would, or would deliver you if they could. For,

who would vindicate your right of unrestrained suffrage, or of choosing what representatives you liked best, merely that you might elect the creatures of your own faction, whoever they might be, or him, however small might be his worth, who would give you the most lavish feasts, and enable you to drink to the greatest excess? Thus, not wisdom and authority, but turbulence and gluttony, would soon exalt the vilest miscreants from our taverns and our brothels, from our towns and villages, to the rank and dignity of senators. For, should the management of the republic be entrusted to persons to whom no one would willingly entrust the management of his private concerns; and the treasury of the state be left to the care of those who had lavished their own fortunes in an infamous prodigality? Should they have the charge of the public purses, which they would soon convert into a private, by their unprincipled peculations? Are they fit to be the legislators of a whole people who themselves know not what law, what reason, what right and wrong, what crooked and straight, what licit and illicit means? who think that all power consists in outrage, all dignity in the parade of insolence? who neglect every other consideration for the corrupt gratification of their friendships, or the prosecution of their resentments? who disperse their own relations and creatures through the provinces, for the sake of levying taxes and confiscating goods; men, for the greater part, the most prodigate and vile, who buy up for themselves what they pretend to expose to sale, who thence collect an exorbitant mass of wealth, which they fraudulently divert from the public service; who thus spread their pillage through the country, and, in a moment emerge from penury and rags to a state of splendor and of wealth? Who could endure such thievish servants, such viceroyants of their lords? Who could believe that the masters and the patrons of a banditti could be the proper guardians of liberty? or, who would suppose that he should ever be made one hair more free by such a set of public functionaries, (though they might amount to five hundred elected in this manner from the counties and boroughs,) when among them who are the very guardians of liberty, and to whose custody it is committed, there must be so many who know not either how to use or to enjoy liberty, who neither understand the principles nor merit the possession? But, what is worthy of remark, those who are the most unworthy of liberty are wont to behave most ungratefully toward their deliverers. Among such persons, who would be willing either to fight for liberty, or to encounter the least peril in its defence? It is not agreeable to the nature of things that such persons ever should be free. However much they may brawl about liberty, they are slaves, both at home and abroad, but without perceiving it: and, when they do perceive it, like unruly horses that are impatient of the bit, they will endeavor to throw off the yoke, not from the love of genuine liberty, (which a good man only loves, and knows how to obtain,) but from the impulses of pride and little passions. But, though they often attempt it by arms, they will make no advances to the execution; they may change their masters, but will never be able to get rid of their servitude. This often happened to the ancient Romans, wasted by excess, and enervated by luxury: and, it has still more so been the fate of the moderns; when, after a long interval of years, they aspired, under the auspices of Cæsar, Nomentanus, and, afterwards, of Nicolas Rentius, who had assumed the title of Tribune of the People, to restore the splendor and reestablish the government of ancient Rome. For, instead of fretting with vexation, or thinking that you can lay the blame on any one but yourselves, know that to be free is the same thing as to be pious, to be wise, to be temperate and just, to be frugal and abstinent, and, lastly, to be magnanimous and brave; so, to be the opposite of all these is the same as to be a slave; and, it usually happens, by the appointment and, as it were, retributive justice of the Deity, that that people which cannot govern themselves, and moderate their passions, but crouch under the slavery of their lusts, should be delivered up to the sway of those whom they abhor, and made to submit to an involuntary servitude. It is also sanctioned by the dictates of justice and by the constitution of nature, that he who, from the imbecility or derangement of his intellect, is incapable of governing himself, should, like a minor, be committed to the government of another; and, least of all, should he be appointed to superintend the affairs of others or the interest of the state.

You, therefore, who wish to remain free, either instantly be wise, or, as soon as possible, cease to be fools; if you think slavery an intolerable evil, learn obedience to reason and the government of yourselves; and, finally, bid adieu to your



disensions, your jealousies, your superstitions, your outrages, your rapine, and your lusts. Unless you will spare no pains to effect this, you must be judged unfit both by God and mankind, to be entrusted with the possession of liberty and the administration of the government; but, will rather, like a nation in a state of pupillage, want some active and courageous guardian to undertake the management of your affairs. With respect to myself, whatever turn things may take, I thought that my exertions on the present occasion would be serviceable to my country; and, as they have been cheerfully bestowed, I hope that they have not been bestowed in vain. And, I have not circumscribed my defence of liberty within any petty circle around me, but have made it so general and comprehensive, that the justice and the reasonableness of such uncommon occurrences, explained and defended, both among my countrymen and among foreigners, and which all good men can not but approve, may serve to exalt the glory of my country, and to excite the imitation of posterity. If the conclusion do not answer to the beginning, that is their concern; I have delivered my testimony, I would almost say, have erected a monument that will not readily be destroyed, to the reality of those singular and mighty achievements which were above all praise. As the epic poet, who adheres at all to the rules of that species of composition, does not profess to describe the whole life of the hero whom he celebrates, but only some particular action of his life, as the resentment of Achilles at Troy, the return of Ulysses, or the coming of Æneas into Italy; so it will be sufficient, either for my justification or apology, that I have heroically celebrated at least one exploit of my countrymen; I pass by the rest, for who could recite the achievements of a whole people? If, after such a display of courage and of vigor, you basely relinquish the path of virtue, if you do anything unworthy of yourselves, posterity will sit in judgment on your conduct. They will see that the foundations were well laid; that the beginning (nay, it was more than a beginning) was glorious; but, with deep emotions of concern, will they regret, that those were wanting who might have completed the structure. They will lament that perseverance was not conjoined with such exertions and such virtues. They will see that there was a rich harvest of glory, and an opportunity afforded for the greatest achievements, but that men only were wanting for the execution; while they were not wanting, who could rightly counsel, exhort, inspire, and bind an unfading wreath of praise round the brows of the illustrious actors in so glorious a scene."

After reading these noble sentiments, we feel, with Wadsworth, that not only England, but our country, and the WORLD hath need of just such men at this crisis of affairs.

Milton! thou should'st be living at this hour:  
The world hath need of thee.

• • • • • We are selfish men:

Oh! raise us up, return to us again;  
And give us manners, virtue, freedom, power.  
Thy soul was like a star, and dwelt apart:  
Thou hadst a voice whose sound was like the sea:  
Pure as the naked heavens, majestic, free.  
So didst thou travel on life's common way,  
In cheerful godliness; and yet, thy heart  
The lowliest duties on herself did lay.

We pass now to Milton's Tractate on Education, to which we have prepared brief Notes, referred to [1-72] in the text, which will be published in a subsequent article.



## TRACTATE ON EDUCATION.

A LETTER TO MASTER SAMUEL HARTLIB.<sup>1</sup>

BY JOHN MILTON.

MASTER HARTLIB :—I am long since persuaded, that to say and do aught worth memory and imitation, no purpose or respect should sooner move us than simply the love of God and of mankind. Nevertheless, to write now the reforming of education, though it be one of the greatest and noblest designs that can be thought on, and for the want whereof this nation perishes, I had not yet at this time been induced but by your earnest entreaties and serious conjurements ; as having my mind half diverted for the present in the pursuance of some other assertions, the knowledge and the use of which, can not but be a great furtherance both to the enlargement of truth and honest living with much more peace. Nor should the laws of any private friendship have prevailed with me to divide thus, or transpose my former thoughts ; but that I see those aims, those actions which have won you with me the esteem of a person sent hither by some good providence from a far country to be the occasion and incitement of great good to this island. And as I hear you have obtained the same repute with men of most approved wisdom and some of the highest authority among us, not to mention the learned correspondence which you hold in foreign parts, and the extraordinary pains and diligence which you have used in this matter both here and beyond the seas, either by the definite will of God so ruling, or the peculiar away of nature, which also is God's working. Neither can I think, that so reputed and so valued as you are, you would, to the forfeit of your own discerning ability, impose upon me an unfit and over-ponderous argument ; but that the satisfaction which you profess to have received from those incidental discourses which we have wandered into, hath pressed and almost constrained you into a persuasion, that what you require from me in this point, I neither ought nor can in conscience defer beyond this time both of so much need at once, and so much opportunity to try what God hath determined. I will not resist, therefore, whatever it is, either of divine or human obligation, that you lay upon me ; but will forthwith set down in writing, as you request me, that voluntary idea, which hath long in silence presented itself to me, of a better education, in extent and comprehension far more large, and yet of time far shorter and of attainment far

more certain, than hath been yet in practice. Brief<sup>2</sup> I shall endeavor to be; for that which I have to say, assuredly this nation hath extreme need should be done sooner than spoken. To tell you, therefore, what I have benefited herein among old renowned authors I shall spare; and to search what many modern *Januas*<sup>3</sup> and *Didactics*, more than ever I shall read, have projected, my inclination leads me not. But if you can accept of these few observations which have flowered off, and are, as it were, the burnishing of many studious and contemplative years altogether spent in the search of religious and civil knowledge, and such as pleased you so well in the relating, I here give you them to dispose of.

The end then of learning is, to repair the ruins of our first parents by regaining to know God aright, and out of that knowledge to love him, to imitate him, to be like him, as we may the nearest by possessing our souls of true virtue, which being united to the heavenly grace of faith, makes up the highest perfection. But because our understanding cannot in this body found itself but on sensible things, nor arrive so clearly to the knowledge of God and things invisible, as by orderly coning over the visible and inferior creature, the same method is necessarily to be followed in all discreet teaching.<sup>4</sup> And seeing every nation affords not experience and tradition enough for all kind of learning, therefore we are chiefly taught the languages of those people who have at any time been most industrious after wisdom; so that language is but the instrument conveying to us things useful to be known. And though a linguist should pride himself to have all the tongues that Babel cleft the world into,<sup>5</sup> yet if he have not studied the solid things in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man, as any yeoman or tradesman competently wise in his mother-dialect only. Hence appear the many mistakes which have made learning generally so displeasing and so unsuccessful. First, we do amiss to spend seven or eight years merely in scraping together so much miserable Latin and Greek as might be learned otherwise easily and delightfully in one year.<sup>6</sup> And that which casts our proficiency therein so much behind, is our time lost partly in too oft idle vacancies given both to schools and universities; partly in a preposterous exaction, forcing the empty wits of children to compose themes, verses and orations, which are the acts of ripest judgment, and the final work of a head filled by long reading and observing with elegant maxims and copious invention.<sup>7</sup> These are not matters to be wrung from poor stripplings, like blood out of the nose, or the plucking of untimely fruit; besides all the ill habit which they get of wretched barbarizing

against the Latin and Greek idiom, with their untutored Anglicisms, odious to be read, yet not to be avoided without a well-continued and judicious conversing among pure authors, digested, which they scarce taste.<sup>8</sup> Whereas, if after some preparatory grounds of speech by their certain forms got into memory, they were led to the praxis hereof in some chosen short book lessened thoroughly to them, they might then forthwith proceed to learn the substance of good things and arts in due order, which would bring the whole language quickly into their power. This I take to be the most rational and most profitable way of learning languages, and whereby we may best hope to give account to God of our youth spent herein. And for the usual method of teaching arts, I deem it to be an old error of universities,<sup>9</sup> not yet well recovered from the scholastic grossness of barbarous ages, that instead of beginning with arts most easy, (and those be such as are most obvious to the sense,) they present their young, unmatriculated novices, at first coming with the most intellective abstractions of logic and metaphysics; so that they having but newly left those grammatic flats and shallows, where they stuck unreasonably to learn a few words with lamentable construction, and now on the sudden transported under another climate, to be tossed and turmoiled with their unballasted wits in fathomless and unquiet deeps of controversy, do for the most part grow into hatred and contempt of learning, mocked and deluded all this while with ragged notions and babblements, while they expected worthy and delightful knowledge; till poverty or youthful years call them importunately their several ways, and hasten them,<sup>10</sup> with the sway of friends, either to an ambitious and mercenary, or ignorantly zealous divinity: some allured to the trade of law,<sup>11</sup> grounding their purposes not on the prudent and heavenly contemplation of justice and equity,<sup>12</sup> which was never taught them, but on the promising and pleasing thoughts of litigious terms, fat contentions, and flowing fees: others betake them to state affairs with souls so unprincipled in virtue and true generous breeding, that flattery, and court-shifts, and tyrannous aphorisms, appear to them the highest points of wisdom;<sup>13</sup> instilling their barren hearts with a conscientious slavery, if, as I rather think, it be not feigned: others, lastly, of a more delicious and airy spirit, retire themselves, knowing no better, to the enjoyments of ease and luxury,<sup>14</sup> living out their days in feast and jollity, which indeed is the wisest and safest course of all these, unless they were with more integrity undertaken. And these are the errors, and these are the fruits of mis-spending our prime youth at the schools and universities, as we do, either in learning mere words, or such things chiefly as were better unlearned.

I shall detain you no longer in the demonstration of what we should not do, but straight conduct you to a hillside, where I will point you out the right path of a virtuous and noble education; laborious indeed at the first ascent, but else so smooth, so green, so full of goodly prospect and melodious sounds on every side, that the harp of Orpheus was not more charming.<sup>15</sup> I doubt not but ye shall have more ado to drive our dullest and laziest youth, our stocks and stubs, from the infinite desire of such a happy nurture, than we have now to haul and drag our choicest and hopefulest wits to that asinine feast of sow-thistles and brambles which is commonly set before them as all the food and entertainment of their tenderest and most docible age.<sup>9</sup> I call, therefore, a complete and generous education, that which fits a man to perform justly, skilfully, and magnanimously, all the offices both private and public, of peace and war.<sup>16</sup> And how all this may be done between twelve and one-and-twenty, less time than is now bestowed in pure trifling at grammar and sophistry, is to be thus ordered.

First, to find out a spacious house and ground about it fit for an ACADEMY,<sup>17</sup> and big enough to lodge one hundred and fifty persons, whereof twenty or thereabout may be attendants, all under the government of one who shall be thought of desert sufficient, and ability either to do all, or wisely to direct and oversee it done. This place should be at once both school and university,<sup>18</sup> not needing a remove to any other house of scholarship, except it be some peculiar college of law or physic where they mean to be practitioners; but as for those general studies which take up all our time from *Lilly*<sup>19</sup> to the commencing,<sup>20</sup> as they term it, master of art, it should be absolute. After this pattern as many edifices may be converted to this use as shall be needful in every city<sup>21</sup> throughout this land, which would tend much to the increase of learning and civility everywhere. This number, less or more, thus collected, to the convenience of a foot-company or interchangeably two troops of cavalry, should divide their day's work into three parts as it lies orderly,—their studies, their exercise, and their diet.

I. For their studies: first, they should begin with the chief and necessary rules of some good grammar, either that now used or any better;<sup>22</sup> and while this is doing, their speech is to be fashioned to a distinct and clear pronunciation,<sup>23</sup> as near as may be to the Italian, especially in the vowels. For we Englishmen being far northerly, do not open our mouths in the cold air wide enough to grace a southern tongue, but are observed by all other nations to speak exceeding close and inward; so that to smatter Latin with an English mouth, is as ill a

hearing as law French. Next, to make them expert in the usefulest points of grammar, and withal to season them and win them early to the love of virtue and true labor, ere any flattering seducement or vain principle seize them wandering, some easy and delightful book<sup>24</sup> of education should be read to them, whereof the Greeks have store, as *Cebes*, *Plutarch*, and other Socratic discourses; <sup>25</sup> but in Latin we have none of classic authority extant, except the two or three first books of *Quintilian*,<sup>26</sup> and some select pieces elsewhere. But here the main skill and groundwork will be, to temper them such lectures and explanations, upon every opportunity, as may lead and draw them in willing obedience, inflamed with the study of learning and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots, dear to God and famous to all ages. That they may despise and scorn all their childish and ill-taught qualities, to delight in manly and liberal exercises; which he who hath the art and proper eloquence to catch them with, what with mild and effectual persuasions, and what with the intimation of some fear, if need be, but chiefly by his own example, might in a short space gain them to an incredible diligence and courage, infusing into their young breasts such an ingenuous and noble ardor as would not fail to make many of them renowned and matchless men. At the same time, some other hour of the day, might be taught them the rules of arithmetic, and, soon after, the elements of geometry, even playing, as the old manner was. After evening repast, till bed-time, their thoughts would be best taken up in the easy grounds of religion, and the story of scripture.<sup>27</sup> The next step would be to the authors of agriculture, *Cato*, *Varro*, and *Columella*, for the matter is most easy; and if the language be difficult, so much the better; it is not a difficulty above their years. And here will be an occasion of inciting and enabling them hereafter to improve the tillage of their country, to recover the bad soil, and to remedy the waste that is made of good; for this was one of *Hercules'* praises.<sup>28</sup> Ere half these authors be read, (which will soon be with plying hard and daily,) they can not choose but be masters of any ordinary prose: so that it will be then seasonable for them to learn in any modern author the use of the globes and all the maps, first with the old names, and then with the new;<sup>29</sup> or they might then be capable to read any compendious method of natural philosophy. And at the same time might be entering into the Greek tongue, after the same manner as was before prescribed for the Latin; whereby the difficulties of grammar being soon overcome, all the historical physiology<sup>30</sup> of *Aristotle* and *Theophrastus*, are open before them, and as I may say, under contribution.

The like access will be to Vitruvius, to Seneca's Natural Questions, to Mela, Celsus, Pliny, or Solinus.<sup>31</sup> And having thus past the principles of arithmetic, geometry, astronomy, and geography, with a general compact of physics, they may descend in mathematics to the instrumental science of trigonometry, and from thence to fortification, architecture, enginery, or navigation.<sup>32</sup> And in natural philosophy they may proceed leisurely from the history of meteors, minerals, plants, and living creatures, as far as anatomy.<sup>33</sup> Then also in course might be read to them out of some not tedious writer the institution of physic; that they may know the tempers, the humors, the seasons and how to manage a crudity; which he who can wisely and timely do is not only a great physician to himself and to his friends, but also may at some time or other save an army by this frugal and expenseless means only, and not let the healthy and stout bodies of young men rot away under him for want of this discipline, which is a great pity, and no less a shame to the commander.<sup>34</sup> To set forward all these proceedings in nature and mathematics, what hinders but that they may procure, as oft as shall be needful, the helpful experiences of hunters, fowlers, fishermen, shepherds, gardeners, apothecaries; and in other sciences, architects, engineers, mariners, anatomists, who doubtless would be ready, some for reward, and some to favor such a hopeful seminary.<sup>35</sup> And this will give them such a real tincture of natural knowledge as they shall never forget, but daily argument with delight. Then also those poets which are now counted most hard, will be both facile and pleasant, *Orpheus, Hesoid, Theocritus, Aratus, Nicander, Oppian, Dionysius*; and, in Latin, *Lucretius, Manilius*, and the rural part of *Virgil*.<sup>36</sup>

By this time years and good general precepts will have furnished them more distinctly with that act of reason which in ethics is called *proairesis*, that they may with some judgment contemplate upon moral good and evil.<sup>37</sup> Then will be required a special reinforcement of constant and sound endocrinating, to set them right and firm, instructing them more amply in the knowledge of virtue and hatred of vice; while their young and pliant affections are led through all the moral works of *Plato, Xenophon, Cicero, Plutarch, Laertius*, and those *Locrian* remnants; but still to be reduced in their nightward studies wherewith they close the day's work under the determinate sentence of David or Solomon, or the evangelist and apostolic Scriptures.<sup>38</sup> Being perfect in the knowledge of personal duty, they may then begin the study of economics.<sup>39</sup> And either now or before this, they may have easily learned at any odd hour the Italian tongue.<sup>40</sup> And soon after, but with wariness and good antidote, it would be



wholesome enough to let them taste some choice comedies, Greek, Latin or Italian; those tragedies also that treat of household matters, as *Trachiniae*, *Alceste*, and the like.<sup>41</sup> The next remove must be to the study of Politics;<sup>42</sup> to know the beginning, end, and reasons of political societies, that they may not, in a dangerous fit of the commonwealth, be such poor shaken uncertain reeds, of such a tottering conscience as many of our great councilors have lately shown themselves, but steadfast pillars of the state. After this they are to dive into the grounds of law and legal justice, delivered first and with the best warrant by Moses, and, as far as human prudence can be trusted, in those extolled remains of Grecian lawgivers, *Lycurgus*, *Solon*, *Zaleucus*, *Charondas*; and thence to all the Roman edicts and tables, with their Justinian; and so down to the Saxon and common laws of England, and the statutes.<sup>43</sup> Sundays, also, and every evening may now be understandingly spent in the highest matters of theology and church history, ancient and modern: and ere this time at a set hour the Hebrew tongue might have been gained, that the Scriptures may now be read in their own original; whereto it would be no impossibility to add the Chaldee and the Syrian dialect.<sup>44</sup> When all these employments are well conquered, then will the choice histories, heroic poems, and attic tragedies of stateliest and most regal argument, with all the famous political orations, offer themselves; which, if they were not only read, but some of them got by memory, and solemnly pronounced with right accent and grace, as might be taught, would endure them even with the spirit and vigor of Demosthenes or Cicero, Euripides or Sophocles.<sup>45</sup> And now, lastly, will be the time to read with them those organic arts which enable men at discourse, and write perspicuously, elegantly, and according to the fitted style of lofty, mean or lowly.<sup>46</sup> Logic, therefore, so much as is useful, is to be referred to this due place, with all her well couched heads and topics, until it be time to open her contracted palm into a graceful and ornate rhetoric taught out of the rule of Plato, Aristotle, Phalereus, Cicero, Hermogenes, Longinus.<sup>47</sup> To which poetry would be made subsequent, or indeed rather precedent, as being less subtle and fine, but more simple, sensuous and passionate. I mean not here the prosody of a verse, which they could not but have hit on before among the rudiments of grammar, but that sublime art which in Aristotle's Poetics, in Horace, and the Italian commentaries of Castelvetro, Tasso, Mazzoni, and others, teaches what the laws are of a true epic poem, what of a dramatic, what of a lyric, what decorum is, which is the grand master-piece to observe.<sup>48</sup> This would make them soon perceive what despicable creatures our common rhymers and play-



writers be; and show them what religious, what glorious and magnificent use might be made of poetry, both in divine and human things.<sup>49</sup> From hence, and not till now, will be the right season of forming them to be able writers and composers in every excellent matter, when they shall be thus fraught with an universal insight into things: or whether they be to speak in parliament or council, honor and attention would be waiting on their lips.<sup>50</sup> There would then appear in pulpits other visages, other gestures, and stuff otherwise wrought, than we now sit under, oft-times to as great a trial of our patience as any other that they preach to us.<sup>51</sup> These are studies wherein our noble and our gentle youth ought to bestow their time in a disciplinary way from twelve to one-and-twenty, unless they rely more upon their ancestors dead, than upon themselves living.<sup>52</sup> In which methodical course it is so supposed they must proceed by the steady pace of learning onward, as at convenient times for memory's sake to retire back into the middle ward, and sometimes into the rear of what they have been taught, until they have confirmed and solidly united the whole body of their perfected knowledge, like the last embattling of a Roman legion.<sup>53</sup> Now will be worth the seeing what exercises and recreations may best agree and become these studies.

II. The course of study hitherto briefly described is, what I can guess by reading, liket to those ancient and famous schools of Pythagoras, Plato, Isocrates, Aristotle, and such others, out of which were bred such a number of renowned philosophers, orators, historians, poets, and princes, all over Greece, Italy, and Asia, besides the flourishing studies of Cyrene and Alexandria.<sup>54</sup> But herein it shall exceed them, and supply a defect as great as that which Plato noted in the commonwealth of Sparta; whereas that city trained up their youth most for war, and these in their academies and Lycæum all for the gown, this institution of breeding which I here delineate, shall be equally good both for peace and war.<sup>55</sup> Therefore, about an hour and a half ere they eat at noon should be allowed them for exercise, and due rest afterwards; but the time for this may be enlarged at pleasure, according as their rising in the morning shall be early.<sup>56</sup> The exercise which I commend first is the exact use of their weapon, to guard, and to strike safely with edge or point. This will keep them healthy, nimble, strong, and well in breath; is also the likeliest means to make them grow large and tall, and to inspire them with a gallant and fearless courage, which being tempered with seasonable lectures and precepts to make them of true fortitude and patience, will turn into a native and heroic valor, and make them hate the cowardice of doing wrong.<sup>57</sup> They must be also practiced in all the locks and

gripes of wrestling, wherein Englishmen are wont to excel, as need may often be in fight to tug, to grapple, and to close.<sup>58</sup> And this perhaps will be enough wherein to prove and heat their single strength. The interim of unsweating themselves regularly, and convenient rest before meat, may both with profit and delight be taken up in recreating and composing their travailed spirits with the solemn and divine harmonies of music<sup>59</sup> heard or learned, either whilst the skillful organist plies his grave and fancied descant in lofty fugues,<sup>60</sup> or the whole symphony with artful and unimaginable touches adorn and grace the well studied chords of some choice composer;<sup>61</sup> sometimes the lute or soft organ-stop waiting on elegant voices either to religious, martial, or civil ditties, which, if wise men and prophets be not extremely out, have a great power over dispositions and manners to smooth and make them gentle from rustic harshness and distempered passions.<sup>62</sup> The like also would not be inexpedient after meat, to assist and cherish nature in her first concoction, and send their minds back to study in good tune and satisfaction. Where having followed it under vigilant eyes until about two hours before supper, they are, by a sudden alarum or watchword, to be called out to their military motions, under sky or covert according to the season, as was the Roman wont; first on foot, then, as their age permits, on horseback to all the art of cavalry;<sup>63</sup> that having in sport, but with much exactness and daily muster, served out the rudiments of their soldiership in all the skill of embattling, marching, encamping, fortifying, besieging, and battering, with all the helps of ancient and modern stratagems, tactics, and warlike maxims, they may, as it were out of a long war, come forth renowned and perfect commanders in the service of their country.<sup>64</sup> They would not then, if they were trusted with fair and hopeful armies, suffer them for want of just and wise discipline to shed away from about them like sick feathers, though they be never so oft supplied; they would not suffer their empty and unrecrutable colonels of twenty men in a company to quaff out or convey into secret hoards the wages of a delusive list and miserable remnant;<sup>65</sup> yet in the meanwhile to be overmastered with a score or two of drunkards, the only soldiery left about them, or else to comply with all rapines and violences. No, certainly, if they knew ought of that knowledge which belongs to good men or good governors, they would not suffer these things. But to return to our own institute. Besides these constant exercises at home, there is another opportunity of gaining experience to be won from pleasure itself abroad: in those vernal seasons of the year, when the air is calm and pleasant, it were an injury and sullenness against nature not to go out and see her riches, and partake in

her rejoicing with heaven and earth.<sup>66</sup> I should not, therefore, be a persuader to them of studying much then, after two or three years that they have well laid their grounds, but to ride out in companies with prudent and staid guides to all the quarters of the land, learning and observing all places of strength, all commodities of building, and of soil for towns and tillage, harbors, and ports for trade.<sup>67</sup> Sometimes taking sea as far as to our navy, to learn there also what they can in the practical knowledge of sailing and sea-fight. These ways would try all their peculiar gifts of nature, and if there were any secret excellence among them, would fetch it out and give it fair opportunities to advance itself by, which could not but mightily redound to the good of this nation, and bring into fashion again those old admired virtues and excellencies with far more advantage now in this purity of Christian knowledge.<sup>68</sup> Nor shall we then need the *monsieurs* of Paris to take our hopeful youth into their slight and prodigal custodies, and send them over back again transformed into mimics, apes, and kishose. But if they desire to see other countries at three or four and twenty years of age, not to learn principles but to enlarge experience and make wise observation, they will by that time be such as shall deserve the regard and honor of all men where they pass, and the society and friendship of those in all places who are best and most eminent.<sup>69</sup> And perhaps then other nations will be glad to visit us for their breeding, or else to imitate us in their own country.

III. Now, lastly, for their diet there can not be much to say, save only that it would be best in the same house; for much time else would be lost abroad, and many ill habits got; and that it should be plain, healthful, and moderate, I suppose is out of controversy.<sup>70</sup>

Thus, Mr. Hartlib, you have a general view in writing, as your desire was, of that which at several times I had discoursed with you concerning the best and noblest way of education; not beginning, as some have done, from the cradle, which yet might be worth many considerations, if brevity had not been my scope.<sup>71</sup> Many other circumstances also I could have mentioned, but this, to such as have the worth in them to make trial, for light and direction may be enough. Only I believe that this is not a bow for every man to shoot in that counts himself a teacher, but will require sinews almost equal to those which Homer gave Ulysses;<sup>72</sup> yet I am withal persuaded that it may prove much more easy in the essay than it now seems at distance, and much more illustrious; howbeit not more difficult than I imagine, and that imagination presents me with nothing but very happy, and very possible, according to best wishes, if God have so decreed, and this age have spirit and capacity enough to apprehend.

## II. REMARKS ON A NATIONAL UNIVERSITY.\*

---

[THE establishment of a great University—the concentration in some one place, of all the means of the highest culture,—it matters not under what auspices of city, state, or denomination, so be it that its class and lecture-rooms, its cabinets, laboratories and libraries are easily accessible to scholars from every section of the country, in any department of study and research—was presented in various forms at the last Annual session of the American Association for the Advancement of Education. It was introduced by the retiring President, Prof. BACHE, in his Introductory Address. To this address we append a report of the remarks which followed its delivery, as well as those of Prof. PIERCE, of Cambridge, which followed the reading of a Paper on the subject of University Development in Europe, by President TAPPAN, of the University of Michigan.]

THE Discussion of the Topics of Prof. BACHE's Address being in order,

PROF. S. S. HALDIMAN, of Columbia, Penn., remarked:—

I wish to submit a few remarks on some points to which from his own connection with the Coast Survey, the President could not well allude, but which establish strong claims on the mercantile community for substantial aid to such an institution of higher learning as has been so admirably presented. He might have dwelt on the discovery of shoals and rocks along our coast, by which navigation has been rendered more safe, and millions of property saved. He might have alluded to the scientific labors of Maury, Espy, and Redfield, by which storms, and head winds can be avoided, and routes to distant parts shortened. He might have alluded to the practical application of the discoveries in electricity and galvanism, by which the protection of the lightning rod by his own invention, had been thrown around our dwellings, and warehouses, and ships, and instantaneous communications established by telegraph, between counting-rooms, and homes, the most widely separated. He might have alluded to the new routes opened to traffic and travel by the explorations made by the officers of our army, who were educated in the highest school of mathematical science in this country. Surely that portion of our community, which enters so largely into these discoveries and their application, can out of their abundance do much to establish an institution, by which science, in all its departments, will be still further advanced and society in all its relations largely benefited.

\* This article should have followed the Remarks of Prof. Bache, on a National University, in No. 4, Vol. I., p. 477.

The President alluded to the fragmentary and disconnected character of higher seminaries—the encroachment of one grade of schools on the legitimate field of another—of our High Schools, and Free Academies, on the colleges and universities. This is a growing evil, surely the former ought not to confer dangers which suppose the culture only attainable in the latter.

REV. CHARLES BROOKS, of Medford, Mass., remarked:—

“ With your permission, Mr. President, I will read a resolution which I had intended to offer at this meeting as an introduction to what I have to say :

*Resolved*, That it is expedient to inquire whether the colleges of the United States, as a continuation of the common schools, should be supported by the State, as the public school is supported by the town.

It seems to me that this Association composed of members from all the older states, is to exercise a vast power upon the interest of learning, and especially in the new states and the republics of South America. It is from the older republics that these new states are to receive their ideas; from our models they are to shape their literary institutions; and it becomes an important question for us to see what we do in this regard. The question then comes before the reflecting mind, what is the best form to be adopted by a Republic? We begin with this proposition, that every child born into the world has a natural right to the development of his powers, physical, intellectual, and moral, in their natural order, at the proper time, and in due proportion; that every individual shall be when grown up just such a character as God ordained for the infant constitution. I apprehend that a republic is the only place upon earth where this idea can be carried into effect. What then is the duty of a republic with regard to every human being born within its territory? I apprehend it to be this; that every family is bound to take care of its children; that every town—I speak of the township for the sake of convenience of illustration, although well aware that it is politically unknown in many parts of the country—that the town is morally and politically bound to see that every child within its precincts receives an education. Every town ought to have a law to secure the attendance of every child at school, public, or private, and compelling the child to go to some school, whether the parents will or not. The state, I apprehend, is but a continuation of the town, and every state is morally and politically bound to see that every child born within its territory, receives a proper physical, intellectual, and moral culture. What, then, is the next step? That the town shall institute infant schools, or primary schools, and shall say to every child under seven years of age—go to that school, and you will find a good school-house, a good teacher, and proper books, all free; and when you have attended that school until you are seven years of age, you have but to make your bow and thank the town. You may then go to the grammar school, where you will find apparatus, teachers, books, all that is required. The town asks only of your parents to clothe and feed you. And when

you have graduated from the grammar school, go to the high school, and there you will find all the instrumentalities required to carry you forward in the higher departments of learning.

And the natural continuation of this system is the true republican idea of education. Carry out this republican idea, that every child has a right to culture, that every town is bound to see that its children receive education, and it follows that every state is morally and politically bound to develop all the talents that God sends into it; and it is therefore the duty of the State to establish a free college, and thus to carry education still onward, and make each child what God designed that he should be. This, I apprehend, is the true republican idea of education. This is the idea which I wish to see established in all the republics of South America. And after all this comes the noble plan which has been so admirably and eloquently described by our retiring President, a University into which the best scholars from our colleges may go and receive from the country such culture of the peculiar talents which each possesses as shall fit him to answer the purpose for which he was born into the world, that he may fill the spot which God ordained that he should fill, that he may work without friction in his own proper place in the world.

MR. JOHN McMULLEN, of New York, followed with some interesting remarks on the power of sympathy in education, which as they had no special reference to the subject of a National University, are omitted in this place.

PROF. BENJAMIN PIERCE, of Cambridge, Mass., remarked:—

There is one subject spoken of in the address of the retiring President, in which with him I have taken great interest, and with him have suffered disappointment;—it is the establishment of a great University. I can, as he can, speak upon the subject, now at least, with independence. There was a time, when we were engaged in our efforts at Albany, when I should have been willing to embark in such an institution, when against the entreaties and almost the tears of my family and friends, I should have been willing, for the sake of the cause of education in the country to have abandoned existing connections with another place of learning, to join that institution. But since that time I have designedly made such engagements, as will make it impossible now. I am therefore, as free as the President, to speak upon the subject. It seems to me to have a very close and important connection with the subject referred to by Rev. Mr. Brooks; the duty of the government to educate every citizen; its duty, because, if for no other reason, it is good economy upon the part of the State, to educate every one of its citizens to the utmost extent; just as good economy as for the farmer to make the most of every portion of his stock. The state will be benefitted by educating every man to the highest point that he can be; and it will be the best investment it can make of its funds to invest them in intellect developed to its utmost capacity.

It seems to me that a great University in connection with the colleges and high schools, is of the greatest importance, because it gives the



only means of adapting education to every variety of intellect. I begin to think that even in our Common School system, excellent as it is, there is one great defect. As it is administered at present in my own State, Massachusetts, I am sure that there is. It partakes too much of the character of a sort of manufactory, in which masses of educated men are to be turned out as if they were screws or pins. This is no way to educate men. Men have individual characters. Their Deity has made them with speciality, and we can not unmake them. Education must consist in giving men opportunities for development, more than anything else, and it is the duty of the State to afford those opportunities. There are certain men, who will, under any circumstances follow the sea. There are others who will stay at home, and stand behind the counter to sell the goods. You can not help it. They will do it. There are others, the Smithsons, the Lawrences, the Coopers, of our race, who will go into the market and make fortunes for the sake of founding institutions of learning which shall be a glory to their country. There are the Newtons and the La Places who are nothing if they are not Newtons or La Places. It is no accident that the same intellectual family has given birth to him who subdued the lightning, and to that other, who is now among us, who has subdued even the earthquake to the service of science, and compelled this destructive agency to explore the depths of the ocean and report its measure with unerring precision.

It seems to me that it is important to provide a greater number of teachers, and also to arrange the schools in such a way that the different classes of intellect can properly be brought out, and can be allowed opportunity to develop themselves. I think that the idea of sympathy which has been referred to [by Mr. McMullen,] is a very important one; not merely the sympathy of the pupils among themselves, but sympathy with their teacher. A pupil can learn from his teacher only when he has a sympathy with him. It seems to me that if we look through the world which the Deity has made, we shall see other indications of what we should do in this respect. We certainly should not think it possible for the lark to learn its song from the raven, or for the bird of night to teach wisdom to the cock that crows in the morning; nor would it be possible for the goose to teach the eagle how to fly. So also I am quite sure that minds of a certain order can only be instructed by minds of the same order. The *similia similibus* is a real law of mind, whether it is of medical science or not. I think that it was important for the education of an Agassiz, that he was subject to the inspiration of a Cuvier; that even if some teachers may go far beyond their pupils, so that they can not fully follow them, yet that the enthusiasm of their nature will inspire the pupil to rival their masters, and that this is a very important element in the development of leading minds.

I know it is a popular doctrine that genius will find its own way; but I doubt whether genius will necessarily be developed of itself. We have another popular doctrine which is much nearer to the truth, which is, that opportunity makes the man. We can not have a great man unless



he has great ability, but, neither can we have a great man who has not an opportunity worthy to develop him. It is important, therefore, that in our public provision for education, we should give this opportunity.

There is one other remark I would like to make, in reference to the religious element as brought into the schools. It seems to me that there is too much of a disposition to exclude it from the fear of sectarian influences. Now I can not but think that the sectarianism is a far less evil than the exclusion of religion; and as a father, I would rather have my own child subjected to any sectarian influences, I care not what they are, than have him taught in a school where his Maker is not constantly recognized. It seems to me that the attempt to entirely leave this out of the schools, is about as rational as it would be if we were to take the salt out of all our food during the day, and think we could properly incorporate it into our system by eating it all together in the morning or at night.

[The subject of this Discussion was resumed by Prof. PIERCE, after the reading of a Paper by President TAPPAN, of the University of Michigan, on the "Progress of Educational Development in Europe."]

This learned and profound discussion of the progress of the University seems to be of the greatest importance to the understanding of what the University ought to be, and what ought to be the relations of our colleges to education. I confess that for the first time, have I had a perfectly clear understanding of this whole subject. I have known that our views in many respects were quite erroneous. I was aware that the name of American System, as applied to our colleges, was altogether erroneous. It is in its very basis such a system as would not have originated in a free people from their own action. It has no element of freedom in it. Its rigid restriction to a period of four years; its conferring of degrees without examination, merely as such, merely as honorary titles, are altogether opposed to our system of free education and the free principles of our country. I hope that at some time or other, this subject will be distinctly brought before us by the Standing Committee, that we may examine it from this point of view, as to the expediency of recommending to our colleges to abandon their present system of a limited period for education, and to found a system upon the idea of giving a real education, such an education as men want, such as parents wish their sons to receive, instead of sending them to college to stay a certain time, and then to come out with the name of being educated, but without the reality.

It seems to me of the highest importance, also, that this Association should distinctly recommend that degrees as at present given, should be abandoned wholly and forever, and that either degrees should not be given at all, or in order to have a real, instead of a nominal value, that they shall be given after satisfactory examination, and that they shall be accompanied with forms of expression indicating the value of the examination. The only institution that I have any personal knowledge of, in the country where this has been introduced, is the Lawrence

Scientific School. To a certain extent, I believe the plan has been adopted in the University of Virginia, and perhaps, also, in some other cases; but I presume it is not carried out with that vigor, with that rigid demand for examination that is required at that School. We might also exclude perhaps the Military Schools at West Point, and Annapolis; but they are very different from the common systems, and are not included in our system of education. I have seen the effect of these examinations upon the Lawrence Scientific School, and I am satisfied that it will at once make a change which it is hardly possible to estimate upon the character of that school, and of all schools founded upon that system. I believe that it will be known hereafter as the model school in that respect; simply because the degrees are given after a very rigid and thorough examination, and only given to those who have successfully passed such an examination. The degrees given, and the different certificates, are taken from the idea of the German and Russian institutions, so ably developed in President Tappan's address. We give the titles, Cum Laude, Magna Cum Laude, and Summa Cum Laude. The consequence is, that the pupils have become stimulated by these examinations to a most extraordinary, not to say sudden manner. Through the school the effect was instantaneous, when they found that the examinations were real examinations. The anxiety to get a high degree, is intense; and it is an ambition accompanied with no rivalry, because every one who deserves it gets it. One man does not put down another by getting it. Another consequence of this plan, is, that the time becomes at once unlimited. It is true that we passed the condition that we would not give an examination until he had been two years in the institution; but this last year, the students examined,—and there were only half a dozen examined—had been in the mere chemical school alone, a period varying from four to six years before they were willing to offer themselves for examination. The consequence was that every one of them had the award of Summa Cum Laude; and they were examinations such as I never before thought possible. They were examinations which these young men, who had been subjected to scientific training only, without the opportunity of classical education, of that admirable classical drilling which we have certainly introduced into our schools, passed the examination as I think no other men could have done, with all the accuracy, all the rigor of a West Point examination. The best scholars at West Point could not have shown themselves more ready; and they were examined upon the highest points of chemistry, each of them being at the blackboard for four or five hours in continuous examination upon the most difficult questions in the Science. One of them, indeed, gave an entirely new mode of investigation, original with himself, upon a subject that some of the eminent chemists of Europe had undertaken in vain to solve. (Applause.) This result was exclusively, I believe, and as I think these young men will tell you, because we had the examinations. There were opportunities offered for education, but not greater than could be obtained almost anywhere without difficulty. They saw the importance of the opportunity,

the moment they saw what there were to be gained by it, and therefore they availed themselves of it. In the school of engineering also, the young men were examined. There were ten or a dozen examined, some of whom received the degree of *Summâ Cum Laude*, some that of *Magnâ Cum Laude*, and some merely that of *Cum Laude*. The year before there had been a few students who could not pass the examination, although they did very well. They were disappointed; but they re-appeared the next year, and then passed the examination, and some of them succeeded in winning a *Summâ Cum Laude*. One of these young men obtained only the *Magnâ Cum Laude*. He said that the examination was fair, he was only entitled to the *Magnâ Cum Laude*, but he was so dissatisfied with himself because he ought to have got more, that he said, I will not take it this year; if you can not give me more than that, I will try again next year. And he is now studying and will not be satisfied until he gets the higher side. It seems to me that we cannot have a more decided and positive proof than this of the value of such a degree given under such circumstances; it ceases to be a name. It is a direct stimulus to education, and a stimulus, which lies in the right way, without raising any bad feelings; and yet it is as strong a stimulus as we can well devise.

It is interesting also to find that this system was introduced, although in an institution connected with the old forms of a college, yet not in an old college. Although I have been connected with these systems for twenty-five years, still I do not hesitate to say that I feel the great difficulties of the arrangement. I feel that it is hardly true in us to palm off with the name of well educated men—because the degree of Bachelor of Arts implies that—those who are not well educated. The President of the College in conferring this degree, says to the Governor of our State, when he is present, that he *knows* them to be well educated, and yet he knows that a great many are not. And thus the great *Scio* has got to be an object of ridicule. I think it is a wrong, and a great wrong, that our certificates of education should have upon the face of them a falsehood. This ought to be remedied; and I believe that if this Association would vigorously stand up and say that this shall be amended, they can carry it through, and the result will be a really American system of education, even if it may have its foundation in Prussia.

MR. WILLIAM B. FOWLE, of Boston, Mass., remarked:—

There exists in this country the most gross inequality in the matter of education. Our declaration of political rights is most signally falsified in this particular. School Districts, Towns, and States, differ as well in the means, as in the condition of education—both in the elementary and higher forms. The only remedy for this inequality, is in applying broadly and universally, the principle relied upon for sustaining a University—that the State should interpose its authority and means to provide institutions of different grades, each as perfect in its appliances as possible, and then enforce on every family the duty of availing itself of these or some other institutions, for the highest moral, intellectual, and physical education of every child.

## VL. THE HIGHER SPECIAL SCHOOLS

OF SCIENCE AND LITERATURE IN FRANCE.

BY DANIEL C. GILMAN, A. M., NEW HAVEN, CONN.

THE contrast between America and Europe in the attention which is paid to special professional education is far greater than is generally supposed.

In the United States the importance of special education in the three learned professions of law, medicine, and theology, has long been recognized, and excellent schools, in which these sciences are taught are established in various parts of the country. Congress has made provision for the instruction of army officers at West Point, and of navy officers at Annapolis; the state governments in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Michigan, have organized normal schools for the education of teachers in common, or public elementary schools; some incompletely furnished institutions have assumed the title "Polytechnic,"—and here until quite recently have ended all attempts in this country to provide for special professional education. Within a few years past a slight advance has been perceptible. Arrangements have been made at Harvard, Yale, Dartmouth, Union, Brown, and perhaps in other colleges and universities, for instruction in applied chemistry and engineering, and "scientific schools" have been formally organized in connection with the three first named of these institutions. A large sum of money has been bequeathed in Massachusetts, for an agricultural school, and two or three State Legislatures have taken measures for the foundation of similar establishments.

Yet there still exists a lamentable ignorance as to the extent to which special schools, and particularly schools of science, are established abroad, for it can hardly be doubted that if a knowledge of their number, character and influence, were generally diffused among the people of this country, they would provide for themselves the same means of education which despotic governments have found contributing so much to the welfare and happiness of their subjects.

In a previous number of this Journal,\* a list was given of the special schools, (*Fach-schulen*), established in the different states of Germany. In further illustration of the acknowledged value of such

---

\* Vol. I., p. 393.

institutions, it is proposed to cite the example of another country, which in spite of its frequent revolutions, maintains a proud preëminence in the application of science and art to the general wants of men.

FRANCE is distinguished among European nations for the number, variety and excellence of schools which provide for special professional education. Under the direction of the government, are not less than nine schools of law, at Paris, Aix, Caen, Dijon, Grenoble, Poitiers, Rennes, Strasbourg, and Toulouse; three schools of medicine, at Paris, Montpellier, and Strasbourg; three schools of pharmacy at the same places; six faculties of theology, and eighty-three grand seminaries of theology of the Catholic church, (one in almost every diocese,) two Protestant faculties and seminaries at Strasbourg and Montauban, and a Rabbinical school at Metz. In the different departments there are not less than eighty-three seminaries or normal schools for male and female teachers. Special provision is made for military and naval instruction in the celebrated Imperial school at Saint Cyr, for the training of infantry, artillery and cavalry officers; in the Imperial naval school at Brest, (upon the vessel *le Borda*,) for the education of officers of the government marine; and in the Imperial school of military medicine and pharmacy at Paris, for the education of army physicians.

But in this article it is proposed to speak of the advantages which are offered in France for acquiring a superior education in special departments of learning, aside from law, medicine, and theology, or military and naval science.

Provision of the most liberal character is made for advanced scientific and literary education in the faculties of the *University*. The title "University" was formerly applied in France, as it still is in Germany to separate institutions of learning, of which there were many,—that of Paris, being the most celebrated. After the great revolution, Napoleon arranged all the departments of public instruction in the empire into one system, which was styled *the University of France*. This appellation, if not formally, is virtually dropped at present, but the "Faculties" of the university are still, and always have been spoken of much in the same way as in Germany and other countries.

Thus the system of public instruction in France, recognizes five distinct faculties; theology, law, medicine, physical and mathematical sciences and letters.

In the empire there are 16 faculties of science, sometimes associated with, and sometimes disconnected from the other faculties above named. They are established at Paris, Besancon, Bordeaux, Caen,

Clermont, Dijon, Grenoble, Lille, Lyon, Marseilles, Montpellier, Nancy, Poitiers, Rennes, Strasbourg and Toulouse.

The scientific faculty at Paris, in the Sorbonne, numbers eighteen professors, (besides five *agrégés*\*) among whom are many men of the highest distinction, Leverrier, Dumas, Milne-Edwards, &c.

The following are the present departments of instruction;—physical astronomy; mathematical astronomy; higher algebra; higher geometry; differential and integral calculus; mechanics; physical and experimental mechanics; calculus of probabilities, and mathematical physics; general physics, (two professors;) chemistry, (two professors;) mineralogy; geology; botany; general physiology; zoölogy, anatomy, and physiology; anatomy, comparative physiology and zoölogy.

The other faculties of science are naturally less complete than that of Paris, and it is deemed enough to mention the number of professors, without specifying their departments. It is as follows: Besancon, six; Bordeaux, six; Caen, five; Clermont, four; Dijon, six; Grenoble, five; Lille, four; Lyon, seven; Marseilles, four; Montpellier, seven; Nancy, four; Poitiers, four; Rennes, six; Strasbourg, six; Toulouse, eight.

The faculties of letters in France are 16 in number, and are in the same towns with the faculties of science, except that there are two of the former at Aix and Douai, and none at Lille and Marseilles. At Paris, in the Sorbonne, twelve chairs are occupied by this faculty, namely; philosophy, history of philosophy, Greek literature, Latin eloquence, Latin poetry, French eloquence, French poetry, foreign literature, comparative grammar, ancient history, modern history, and geography. There are four honorary professors, Messrs. Guizot, Villemain, Cousin, and Boissonade, and twenty *agrégés*. In the provincial towns, the number of professors in the faculty of Letters, is nearly the same as in that of the faculties of science.

There are four schools of a preparatory character, in which there are instructors both of Science and Letters at Angers, Mulhouse, Nantes and Rouen.

Subordinate to these faculties are the lyceums, 62 in number, and colleges, 245 in number, which are "secondary" in their rank, and hold nearly the same position in France, as the gymnasiums and real-schools in Germany. The limits of this article will not allow of their examination.

There is one college, however, which is an exception,—the Imperial College of France, which was founded in 1530. Although now

---

\* The *agrégés* in France correspond nearly to the Privat Dozenten in Germany.



nominally under the ministry of public instruction, it has always been an independent establishment, and was not even included in the university organization of the Emperor Napoleon. In this institution there are thirty-four readers and professors in the following departments:—astronomy, mathematics, general and mathematical physics, general and experimental physics, chemistry, medicine, natural history of inorganic bodies, natural history of organic bodies, comparative embryology, natural and statute law, history of legislation, political economy, history and morals, archæology, Hebrew, Chaldaic, and Syriac languages, Arabic language, Persian language, Turkish language, Chinese and Tartar-manchou language and literature, Sanskrit language, Greek language and literature, Latin eloquence, Latin poetry, Greek and Latin philosophy, French language and literature in the middle ages, modern French language and literature, languages and literature of modern Europe, Slavic languages and literature.

Some of the professors here, are also professors at the Sorbonne. Many of their names are of the highest distinction for example. Michel Chevalier, Elie de Beaumont, Biot, Stanislas Julien, &c.

In this place may also be mentioned the lectures of the Museum of Natural History, at the celebrated Garden of Plants. Connected with this institution are professors devoted to the following departments of natural history and science; comparative physiology; comparative anatomy; anatomy, and natural history of man; zoölogy, (mammalia and birds;) zoölogy, (reptiles and fishes;) zoölogy, (insects, crustacea, and arachnides;) zoölogy, (Annelides, molluscs, and zoöphytes;) botany; cultivation; geology; mineralogy; palæontology; physics applied to natural history; organic chemistry; inorganic chemistry.

It thus appears that in sixteen faculties of science, the college of France, and the museum of natural history, instruction in pure science, of the most elevated order is provided, and that in sixteen faculties of letters, corresponding advantages are offered for literary pursuits.

But this is by no means all. The natural sciences, in their applications, are taught in a large number of central schools, established for the most part at Paris, and usually bearing the title "Imperial," as a recognition of the high estimation in which they are held by the government. In the provincial cities and towns, subordinate schools of science are found, of grades which correspond to the "Secondary," and "Primary" schools, ordinarily so called in the continental systems of public instruction. Many graduates of the higher Imperial schools become teachers in the lower schools, by means of which a practical knowledge of science is well diffused among all



classes in society. Other graduates of the higher schools ultimately take the chief direction of mines, chemical and other manufacturing establishments, works of civil engineering, architectural undertakings, and immense landed estates, or they enter some administrative department of the government which demands a deep knowledge of science, for example, the mint, the inspection of drugs, foods, &c.; while the subordinate positions, either in industrial callings, or in these branches of civil service are filled by those who have studied in the lower class of schools. There are also special schools of a Literary character.

From the institutions for instruction in pure science, and in the highest departments of literature, we accordingly pass to a consideration of those institutions in which the applications of science hold a prominent place, or literary pursuits are followed with some practical aim. Information mostly derived from official sources, will be given concerning all the more important, beginning with those of a literary character.

The following special schools of language and history are established by the French government.

1. *The Imperial School of Records*, (*Ecole des Chartes*), at Paris. This institution, begun in 1821, and connected with the Imperial Library, prepares young men for the duties of librarians and keepers of public archives. Candidates for admission must be not less than 24 years old, and must have received the degree of *Bachelier ès Lettres*. The course of studies occupies three years, at the end of which those who have passed a successful examination, receive the diploma of *Archiviste paléographe*. This diploma gives the right to a salary of 600 francs for three years to six former pupils of the school. This right is lost by refusing to accept a position in the public employments open to the archivists, such as the duties of librarians, archive keepers, teachers in the *Ecole des Chartes*, &c. There are eight scholarships, (*bourses*), open to the pupils of this school, the annual income of each being 600 francs. The pupils are charged with the publication of the *Documents inédits de l'histoire de France*.

There are seven professors in the school who instruct in the deciphering of manuscripts and documents, in geography and history, the use of seals, value of monies and measures, study of languages, archaeology, &c., &c.

2. *School of living Oriental Languages*. This school, also connected with the Imperial Library, was founded in 1795, with a view to advancing the interests of the government service, military and civil, in Asia and Africa, and at the same time, to encouraging linguistic science. There are nine chairs, namely,—Arabic; Persian; Tur-

kish; Armenian; modern Greek, and Greek Palæography; common Arabic; Hindoostani; Chinese; Malay, and Japanese.

3. *Course in Archaeology.* A course of instruction in Archaeology in connection with the cabinet of medals in the Imperial Library, was commenced in 1795, with a view to making known the monuments of art and the historical monuments of antiquity.

4. *French School at Athens, Greece.* The object of this school is to give young professors the means of perfecting themselves in the language, history and antiquities of Greece. The members of the school are named by the minister of public instruction, after a special examination in the Greek language, ancient and modern, the elements of palæography and archaeology, and the history and geography of Greece. They reside at Athens two years, (and may do so by special permission for a third year,) during which time they receive a special salary.

We now proceed to consider separately, the higher institutions for instruction in the applications of science. They vary of course in their character, rank, and requirements for admission. Some of them are under the direction of the ministry of public instruction, others under the ministry of agriculture, commerce, and public works, the ministry of the interior, and the ministry of war. As it is difficult to choose a proper order for their enumeration, that of the *Annuaire de l'Instruction Publique*, will here be followed.

1. *Imperial Schools of Agriculture* are established at Grignon, Grand-Jouan, and la Saulsaie, and St. Angean. Candidates for admission must be at least 17 years old, and must pass an examination in arithmetic, geometry, and physics, and in French orthography, and grammar. The course of studies lasts three years, at the end of which certificates of capacity are awarded.

In addition to these three high schools of agriculture, there are forty-nine of subordinate farm schools, (*fermes-écoles*), situated in the different departments of the empire.

2. *Imperial Veterinary Schools* are located at Alfert, Lyon, and Toulouse. These schools are to train veterinary surgeons, for military and civil service. The candidates for admission must be between 17 and 25 years old, and the course of studies last four years.

3. *Imperial Schools of Arts and Trades* have been founded at Châlons sur Marne, since the year of the Republic; at Angers since 1811; and Aix since 1843. Pupils to be admitted must be between 15 and 17 years old; their instruction continues for three years, and is both theoretical and practical in its character. The scholars are fitted to be the heads of manufacturing establishments, foremen in

shops, &c., receiving a more practical education than in the following higher schools.

4. *The Central School of Arts and Manufactures* at Paris, was begun in 1829 as a private institution, intended to prepare civil engineers, directors of manufactories, professors of applied science, &c. It is now under government direction, and prepares its pupils in four specialties; chemistry, mechanics, metal working, and civil engineering. Candidates for admission must be at least 16 years old, and must pass a satisfactory examination in arithmetic, algebra, geometry, and designing. The complete course of instruction extends through three years. In the third year pupils may be examined for the diploma of civil engineer, and certificates of capacity may be awarded to those who excel only in some of the departments of study.

5. *The Imperial School of Mines*, at Paris, is designed to train government engineers, but pupils are received who do not intend to enter the public service. Candidates for entrance must be between 18 and 25 years of age, and must pass an examination in arithmetic, algebra, geometry, rectilinear trigonometry, theory and use of logarithms, elements of analytical geometry, and elements of statics. They must have some acquaintance with the practice of design.

The course of studies last three years, and instruction is gratuitous.

6. *School of master workmen in Mines* at Alais. This school is for educating foremen of mines, who shall have sufficient practical skill to guide the workmen, and enough theoretical knowledge to understand and execute the orders of the Director of the mine. The candidate for admission must be 16 years old, and must be able to cipher and understand the metrical system of weights and measures. The studies continue through two years, at the end of which the certificate of master miner is given to those who are qualified for it.

7. *School of Miners at Saint Etienne*. This institution is designed to train directors of mines, metallurgical establishments, &c. No one can be admitted who is less than 16 or more than 25 years of age. The preliminary examination requires a knowledge of the French language, arithmetic, elementary geometry and algebra, and the elements of linear design. The course of instruction, lasting three years is gratuitous. Certificates of capacity are awarded at its close.

8. *Imperial School of Forestry*, at Nancy. This institution is to train young men for the service of the administration of forests, a department of the government peculiarly important in France, on account of the high price of fuel, timber, &c. Pupils seeking admission, must be not less than 19 years of age, and not more than 22.

They must be free from all physical infirmities and disease, and must have received the degree of *Bachelier ès Sciences*, or a certificate of corresponding proficiency, and must also pass a satisfactory examination in geometry, trigonometry, physics, chemistry, cosmography, mechanics, history and geography of France, and the German language. They must also write a French grammatical exercise, a Latin version, a German theme, and must evince a knowledge of linear and imitative design.

The course of studies lasts two years. At its termination, students who have passed a satisfactory examination have the rank of *garde général* of forests, and have a right to the vacancies occurring in the employments of that trade. They receive, provisionally, the salary of *garde général adjoint*, and are employed in the administration.

9. *The Imperial School of Bridges and Roads*, (*Ponts et Chaussées*), at Paris, is designed to train engineers of bridges and roads for the service of the government. Such pupils are received only from the Polytechnic school, but others, not intended for the public service, may also be admitted. The subjects of study are, construction of roads, rail-roads, canals, bridges, harbors, improvement of rivers, civil architecture, applied mechanics, agricultural hydraulics, etc.

Candidates for admission must be between 18 and 25 years of age, and must pass a triple examination, the highest studies in which are analytical and descriptive geometry, differential and integral calculus, mechanics, architecture, physics, and chemistry.

10. *Imperial Polytechnic School*, at Paris. In this institution young men are trained for the following services: military and naval artillery and engineering, the corps of hydrographical engineers, the commissariat of the marine, the corps of the *Etat Major*, roads and bridges, mines, administration of tobacco, telegraphic lines, &c.; in short, those public services which demand a knowledge of physical, chemical, and mathematical sciences. Candidates for admission must be born in France or naturalized, must be between 16 and 20 years of age, and must have received the degree of *Bachelier ès Sciences*. They must pass a written and oral examination in various studies, including trigonometry, analytical and descriptive geometry, mechanics, physics, and chemistry, the French and German languages, &c. The studies continue through two years. The pupils are under military discipline.

11. *Conservatory of Arts and Trades*, at Paris. In connection with this great Industrial Museum, lectures are annually given by eminent professors, in the following departments: Geometry applied to the Arts, descriptive Geometry, Mechanics applied to the Arts, Physics

applied to the arts, chemistry applied to industry, chemistry applied to the arts, agricultural chemistry, zoölogy applied to agriculture and industry, agriculture, ceramic arts, spinning and weaving, dyeing, civil constructions, Industrial administration and statistics, industrial legislation.

Such are the principal higher schools for special scientific instruction. Subordinate schools, more directly practical in their character, have naturally arisen all over the land, some established by public, some by private enterprise. Among the former may be mentioned nearly fifty farm-schools, (*fermes écoles*,) and over forty schools of navigation, (*hydrographie*,) established in the principal maritime towns of the empire, for training captains and masters for commercial vessels.

No notice has been given in this article to the schools of design, of the fine arts, and of music, for which liberal provision is also made by the government. Their consideration may hereafter be taken up.

In a recent number of the *American Journal of Science*, (July, 1856, p. 146,) appears an interesting letter from an American gentleman now in Paris, in relation to the advantages which are offered in the various schools of Science in that city. He gives the following advice to Americans who propose to pursue their scientific studies in France.

"Let the student arrive about the 1st of November in a Havre Packet, and establish himself in comfortable lodgings, somewhere on the south side of the Seine, in the neighborhood of the great schools. These may be had, with board, for \$5-7 per week. On or about the 15th of November, lectures begin at the 'Ecole des Mines,' the 'Sorbonne,' the 'Jardin des Plantes,' a little later at the 'Conservatoire des Arts et Metiers,' and the 'Collège de France.' The Ecole des Mines has many of the most celebrated men among its professors, and its course it is well known is most thorough and exact; but admission to it is not always easy, and the student should not attempt it unless he proposes to remain for the whole term of three years. It is perhaps also a better place to become acquainted with practical mining, than to acquire a knowledge of general principles, and a liberal scientific training. Let the student rather attach himself to particular schools for particular studies. For analytical chemistry, let him enter some one of the excellent private laboratories, of which he will see notices pasted up all over this part of Paris, and at the same time follow the lectures of M. Ballard, the celebrated discoverer of bromium, and an admirable lecturer, or those of his colleague, M. Dumas, at the Sorbonne. For agricultural chemistry, let him resort to M. Bousingault, at the 'Conservatoire des Arts et Metiers.' On particular subjects he will find admirable lectures at the Collège de France, like those of M. Déville, this winter, on volcanoes. If he wish to acquire a thorough knowledge of rocks and minerals, let him follow the lectures of M. Cordier and Dufrénoy respectively, at the Jardin des Plantes, or rather let him follow the 'Cours Pratiques d'Histoire Naturelle' of the Garden, conducted by the Assistant Professor of this magnificent establishment, and which promises to become one of the most important of the scientific advantages of Paris, especially to foreigners. Indeed, it is to the Jardin des Plantes, that the student must chiefly resort for a combination of all the facilities required for the successful study of the natural sciences. We are apt to suppose, in America, that it is nothing more than a great botanical and zoölogical garden. This is a mistake; its true name is the 'Muséum d'Histoire Naturelle,' and it is a magnificent establishment, devoted to the culture of every branch of scientific knowledge connected with the earth and its inhabitants.

It has been rendered illustrious by the learned labors of Buffon, Cuvier, and a host of other distinguished men. Besides the grand galleries of Anatomy and Botany, there is a magnificent gallery of Mineralogy and Geology, all of them situated in a beautiful garden devoted to the Horticultural, Botanical, and Zoological part of the establishment. There are lectures delivered gratis upon Chemistry by Frémy, Electricity Becquerel, Geology by Cordier, Mineralogy by Dufrénoy, and on other subjects by men equally celebrated, such as D'Orbigny and St. Hilaire. And for the purpose of giving a more thorough and complete sort of instruction than can ever be conveyed by ordinary lectures, the 'Cours Partiques d'Histoire Naturelle' have been established, or 'Repetitions de Minéralogie, de Géologie, de Botanique, et de Zoologie, avec manipulations et nombreux exercices à l'aide d'instruments et d'échantillons,' with charges for the *whole* of the four courses, \$25; for one set of lectures, \$6; for more than one, \$5 each. Or should the student wish for more special instruction still than this, he can obtain it on any branch of Natural Science for 5fr. or \$1 per lesson from any of the Assistants at the Jardin des Plantes, accompanied with the free use and examination of instruments and specimens, and what perhaps is of more advantage, a thorough initiation under their eye, into all the curiosities and treasures of these vast, beautiful, and costly collections, in many respects, probably the most complete that can be found. It will be seen, therefore, by the student, that in Paris he can have the command of all possible advantages for the prosecution of scientific studies, most of them gratis, and the rest at a moderate price."

#### LOVE, HOPE, AND PATIENCE.

"O'er wayward childhood would'st thou hold firm rule,  
 And sun thee in the light of happy faces,  
 Love, Hope, and Patience, these must be thy graces,  
 And in thine own heart let them first keep school.  
 For as old Atlas on his broad neck places  
 Heaven's starry globe, and there sustains it;—so  
 Do these upbear the little world below,  
 Of education,—Patience, Love, and Hope.  
 Methinks I see them grouped in seemly show,  
 The straitened arms upraised, the palms aslope,  
 And robes that, touching as adown they flow,  
 Distinctly blend, like snow embossed in snow.  
 O part them never! If Hope prostrate lie,  
   Love too will sink and die.  
 But Love is subtle, and doth proof derive  
 From her own life that hope is yet alive;  
 And bending o'er, with soul-transfusing eyes,  
 And the soft murmur of the mother dove,  
 Woos back the fleeting spirit, and half supplies;  
 Thus Love repays to Hope what Hope first gave to love.  
 Yet haply there will come a weary day,  
   When overtasked at length  
 Both Love and Hope beneath the load give way.  
 Then with a statue's smile, a statue's strength,  
 Stands the mute sister, Patience, nothing loth,  
 And both supporting does the work of both."

S. T. COLERIDGE.



## XII. LETTERS TO A YOUNG TEACHER.

BY GIDEON F. THAYER,

Late Principal of Chauncy-Hall School, Boston.

BEFORE attempting to illustrate the principles laid down in my May letter, and show their application to the business of the school-room, I will devote one letter mainly to the subject of *manners*; a subject scarcely inferior in importance to that of *morals* themselves. *Morals* form the basis of human character; but *manners* are its decorations, and aids to its developments. *Morals* are the staple of human laws, the grand regulators (or should be) of human governments; *manners* are their gildings, which tend to soften their asperities, and win a more ready acquiescence in their observance. *Morals* are the solid bullion, forming the foundation of the currency of a community; *manners*, the small notes or coins, ever ready for use, and without which the business intercourse of mankind must cease, or retrograde to the condition of things that existed in the world's infancy. In fine, *morals* are the sun behind a cloud, which, though giving light to the world, lacks the genial force of its shining face; *manners* are the agencies that displace the cloud, and reveal the glorious orb in all its original power.

We hence perceive an intimate connection between the two. Neither is complete in itself. One is the complement of the other. They should not be separated. *Morals* divorced from *manners*, would be cold and repulsive; united to them, they become attractive and pleasing. While *manners*, unassociated with *morals*, degenerate into hypocrisy—furnishing an illustration of the “whited sepulchre” of the New Testament.

Let it be understood, then, that in speaking of *manners*, *civility*, *courtesy*, or *politeness*,—for I shall use them synonymously,—I allude to them as having a right foundation, and as belonging to moral duty. They give a charm to social intercourse, which nothing else can supply. This is a fact universally admitted; and yet one that seems to be less practised upon, in each succeeding year of our nation's history.

It was once a sufficient guaranty for gentlemanly *manners*, that the individual had been reared by respectable parents. This is now by no means a conclusive inference. Family training, in many instances,—

perhaps in a majority,—has fallen into disuse; and chance, or the will of the young, has taken its place. The respect always due to parents, to seniors in age, to superiors in station, in wisdom, and virtue, has so nearly died out in this country, as to have undermined the very foundation of that for which I am pleading. For, if from those whose claims are of a paramount nature, the ordinary civilities of refined life are withheld, it is in vain to expect they will be extended to the stranger, encountered in the marts of business, the walks of pleasure, or the rounds of general intercourse.

An apostle, in writing to a young friend, says, in speaking of children, "let them learn to show piety at home,"—meaning *duty to parents, or those in superior relation*. Here, then, *at home*, is where the sentiment is to take root, be nurtured, and made to grow. Its influence will then go forth with the young, controlling their behavior towards others, and checking that rudeness which has become a reproach to our country among the more civilized nations of the earth.

Since, then, this duty has come to be so much neglected by those on whom it naturally devolves, the teacher is to exercise double diligence in its inculcation. And, although it may be very discouraging, especially at the outset of your teaching, to think that you work single-handed, let me entreat you to take courage; to assure you that, in most cases, your efforts will be appreciated and seconded at the homes of the pupils. It is not that fathers and mothers do not *wish* to have their children grow up, adorned with the graces, as well as imbued with the good morals, properly belonging to a Christian community: they are very glad to have this boon bestowed upon them; but the pursuit of business—the accumulation of wealth—engrosses the father's attention, absorbs his time, and leaves him no leisure for the home instruction of his children. The mother may do what she can, but without her husband's coöperation, her best endeavors are often neutralized. When, however, she finds the work begun at school, she is eager in assisting the teacher to carry out his plans. Ascertaining what they are, she strives to enforce them when the children are in her presence, and each aids the other in the good work.

But how are the details in this training to be carried into practice? To answer this, involves numerous particulars. To teach penmanship well, a man must write well himself; to make good readers, he must read well; to make good mathematicians, he must understand well the subject. "As is the teacher, so is the school." The aim and effort of the man, who would impress the stamp of the Christian gentleman upon the manners, habits, and character, of each one of his pupils, must be to *deserve that appellation himself!* In proportion

as he merits this, will he succeed in multiplying the copies of so desirable a work.

Let us now ascertain the elements of genuine politeness. The counterfeit we should eschew as we would a spurious bank-note. It can have no connection with morals; and it is politeness, as coadjutor with morals, which it is our purpose to encourage and promote.

Politeness, or good manners, then, we consider as the offspring of benevolence, love, or kindness of heart. Its aim is to make others happy; to smooth down the rough edges and sharp points to be met in our collisions with society, and thus to prevent that friction from human intercourse which is inevitable without the exercise of this meliorating grace. From the uncouth bearing of many individuals, it may be deemed impossible, in their cases, to add or develop this grace; and it is admitted that the task will not be a light one. But there is a germ of the "raw material" in every human soul; and the business of the educator is to unfold, to form, and direct it. This will be difficult or easy, according to the temperament of the respective subjects; but, be assured, it is invariably attainable, although not in equal degrees. Every one may be taught, by proper attention and needful skill, to write well; but no human power can make elegant penmen of all. Some have an innate incapacity for the perfection of the art. So it is with forming the manners. Still, this should furnish no excuse for omitting the attempt. The effort is all the more necessary. When Lowell Mason, nearly thirty years ago, introduced instruction in vocal music into the school with which I was then connected, in trying the voices of the pupils, he discovered that some possessed very limited vocal power—capable of sounding no more than three notes of the scale; but he did not turn them aside, saying, —as had been the practice with his predecessors in teaching the art, —that "they had no voice, and could never make singers;" no; he said, wisely, that they needed instruction and training so much the more, that their natural deficiencies might be, to some extent, counteracted; and the result proved the soundness of his judgment. In six months they had nearly doubled their power, and could sound, some five, some six notes.

Some persons are, apparently, *born* ladies or gentlemen, and require little or no direction from others. Some, with an intuitive faculty of imitation, take on the most agreeable and finished manners, from being surrounded by suitable examples. Others, of an easy and good-natured temperament, float on under its influence, securing the good will of their associates, quite unconsciously and without effort.

But a large majority of children, at the school-going age, are (to borrow Addison's idea) like the marble in the quarry, and need the hand of the polisher to develop their latent capabilities.

Impressed, then, with these truths, I would say to you, my young brother, let the Courtesy of the Heart distinguish your whole deportment—when instructing a class, as well as when in private conversation with their parents or others; at home and abroad; in your own study, and at the public exhibition. Have not one code of manners for the fireside or the school-room, and another for company; excepting in the degrees of deference which different ages and stations demand. These are recognized and claimed by the hand-book of our divine religion. Never lose your self-respect, your good language, your temper, nor your philanthropy. To do either of these would undo the beneficial effect of a long course of verbal instruction.

Many young men, at college and elsewhere, away from the restraining and refining influence of the gentler sex, acquire ungainly habits, which they afterwards continue to practise, perhaps unconsciously, even when they have become teachers,—such as throwing the chair back and causing it to rest on its two hind legs; putting the feet, raised breast-high, on the desk or form in the school-room; cutting and scraping the nails in company, &c., very much to the scandal of the profession, and highly derogatory to the delinquents. I need not say how ill-bred, how disgusting such habits are.

Few persons, of ordinary reflection, need be in doubt on any point of good or ill breeding. When a common instinct or sense of propriety fails to settle the point in your mind, the example of the individual among your acquaintance, of acknowledged taste and refinement, may be relied on as a safe guide.

Although conventional usage fixes a certain standard of civility for its own observance in almost every country, there are certain laws of courtesy, that are universal among civilized nations: one of which is, to avoid doing whatever may offend the taste, delicacy, or feelings, of the company in which we are. Another, to do what will contribute to the happiness, pleasure, or innocent enjoyment of one's associates. A third, to waive, for another's comfort, any little gratification to ourselves. He who is not prepared to adopt, for his own guidance, these fundamental rules of genuine politeness, will fail to rise to any considerable eminence among the truly polite, and must present to others but a poor model for their imitation.

There is a *prestige* in the very bearing of a man of genuine good-breeding, which every one feels on entering his presence. I remem-

ber to have heard an illustration of this, many years ago. Governor Everett, of Massachusetts, widely known as an accomplished gentleman, frequently visited a primary school in the city of Boston, when every pupil evinced, by his deportment, that he *felt* the influence of the Governor's courteous manners, even before he spoke; and on one occasion a little pupil said to the teacher, after he had withdrawn, "Miss Brown, I always feel just as if I must keep bowing, when that gentleman comes into school."

It has been said, and often written as a copy-slip, for the last fifty years or more, that "Amiable manners adorn correct morals." And that "A man's manners form his fortune." They do more: before we have ascertained whether a man possess *any* morals or not, his manners have already made an impression on our minds and feelings. Stranger though he be to us, our opinion of him is formed, either of favor, indifference, or dislike. We may do him injustice. He may be repulsive in his exterior, and yet a man of sterling merit; while, on the other hand, with all the graceful externals of a gentleman, he may be a knave. There is no infallible rule in the case. One thing, however, is certain: he is not more likely to be unworthy for being agreeable; and his manners are always considered as a recommendation. They are like well-known coins of acknowledged value, current at every counter; while stern integrity, destitute of external grace, like bills of exchange without an endorser, are slow to be accepted. *Time* usually does all men justice; but before some individuals have, by a long course of good conduct, proved to others their real worth, the tide in their affairs which leads to fortune has begun to ebb, and the flood may not again return.

Further. Good manners are not merely a selfish good: they please and gratify others. They generate confidence and allay irritated feeling. The mother, how ill-regulated soever her own children may be, points to those of her neighbor, who are well-bred, as patterns for their imitation; while the man of self-discipline, struck by their charm, endeavors to reproduce them in his own demeanor.

The manifestations of good manners, in the many trifling particulars which they involve, are so insignificant, individually considered, as to almost forbid their introduction into this letter; but as it may fall under the eye of some of those who are to be *ultimately*, if not *directly*, benefited by the views herein presented, I will venture—though with some misgivings—to present a specimen.

The *bow*, among most of the civilized nations of the world, is a common token of respect and courtesy, although it is sometimes used

merely as a sign of recognition among familiar acquaintances. In the rural portions of our own country, it is considered a synonyme for *manners*, in boys, as is courtesy, in girls; and the good dame says to her sons, on the entrance of a visitor, "Make your manners, children." It formerly was, also, a synonyme for *reverence* in the same connection.

It has been spoken of as one of the most potent ceremonies current among men; and truly it may not, in its consequences, be easily overrated. It is an act whose significance every one comprehends, and secures, at sight, the compliment it deserves. Nay, it is not too much to say, that to a well-timed and graceful bow, many a lad has been indebted for his position and distinction among men; and it will ever continue to be so, as long as civility is appreciated by mankind, and this continues to be one of its acknowledged expressions.

Perhaps this is founded on a principle in the human mind, that may be deemed selfish—the bow being a manifestation of respect or courtesy to the individual receiving the salutation; or it may be a feeling of gratification that the youth is thus entering for himself on a course that will conduct him to respectability and honor. Whatever the cause, the effect is certain; and it were to be wished that the efforts of teachers might lead to a more general observance of the practice in question.

Macklin, in his *Man of the World*, makes Sir Pertinax speak of it as the very pledge of thrift; acknowledging that *his* success in life had been owing, almost exclusively, to the omnipotent "boo," as he gave it. While our own Franklin encourages a similar idea, in his lessons to young men, on success in the world. And Shakspeare, by Hamlet, introduces the same thought in his speech, where he says,

"And crook the pregnant hinges of the knee,  
Where thrift may follow fawning."

But if it were observed as a hollow ceremony alone, to secure goodwill and lay the foundation of fortune, I should consider it contemptible, and unworthy a young, frank, and generous mind. O, teach not the unsophisticated beings under your care, anything so foreign to the purposes of your holy office!

I wish to speak of it in a simpler and a better sense—merely as an expression of politeness or deference. And, however obsolete it may have become with a portion of our young people, I say, *let it be revived*—especially at school; on entering or leaving, on receiving or giving anything. Let it, also, be observed at home, in the street, in company; wherever, in short, personal communication is held with others, or another, by word or action. To ladies, to teachers, to gen-



lemen in advanced life, let the hat be lifted wholly from the head ; with others, a touching of the hat will suffice, or—if on perfectly familiar terms with the person saluted—the touching of the hat may be omitted.

These distinctions should not be forgotten. A few specimens of the “good old English gentleman” and of the well-bred men of our own country of the Washington stamp, yet survive, who exemplify the grandeur and gracefulness of this style of manners. Would there were more, and that we could arrest the rapid decadence of their practice !

There is no one thing, in itself so trivial, that would tend more powerfully to arrest the tide of rudeness that is sweeping over our land, and carrying our character for respectability away with it, than the reëstablishment of this ancient token of good breeding.

Along with this, I would insist on the addenda of *sir* and *ma'am* (or madam), in conversation with persons to whom they properly belong. An observance of this is indispensable to the preservation of the various grades and classes of persons in their appropriate spheres. I am not speaking of *castes* in our community,—I repudiate the idea, —but of those divisions marked by nature itself, so necessary to be preserved, and on which the permanent welfare of our people, in a great measure, depends.

These two ceremonies restored and continued in use among us, would reintroduce a class of individuals into our community, which once formed a most interesting connecting link between childhood and youth or early manhood, but which, of late years, has followed in the track of the “lost arts”—boyhood and girlhood having been practically expunged from the natural series or stages of life !

It is a failing to observe the injunction, “not to think more highly of himself than one ought to think,” that has foisted upon us this evil. Rushing to secure the best seats at a public table, appropriating to self the most desirable accommodations in a public vehicle, smoking in presence of others, without ascertaining whether agreeable to the company or not—and even when ladies are present:—these are some of the natural consequences of the new *civilization*. Wearing the hat in the house, engrossing the conversation in company, sitting while their elders are standing, impatience or greediness at table, appropriating personally some delicacy intended as a compliment to a guest or honored friend present, omitting those little attentions and courtesies, which give such an indescribable charm to the social meal, —which are all found in the well-bred man's code of *table manners*,—are among the minor fruits of the system of “Young America.”

These things should be noted, deprecated, and corrected. By making them subjects of specific instruction in school, you will confer a lasting and important benefit on the community among whom you labor, while you make your own intercourse with the young a source of continually-increasing satisfaction to yourself.

The countenance of the teacher should wear a benign, or, at least, a calm aspect, that it may not contradict the gentle or courteous language he uses in his intercourse with his school. The salutations at meeting in the morning, and the adieus at parting, should, always when practicable, be practised by the teacher. They tell on the heart not less than on the manners of the young. Compare the families of those where this practice is regarded, with those where it is neglected. I need no other advocate than this comparison, for its observance, among all of even moderate discrimination. The contrast presented, is attraction and repulsion; beauty and deformity; refinement and barbarism.

Politeness is not only for all times, but for all persons; is not to be wholly neglected in the intercourse even of school-children. Some liberties may very properly be indulged in among them, as familiar acquaintances, but these must have their limits; and such intimacies will be profitable or injurious in proportion as this direction is observed or disregarded.

In the conjugal relation, too, particular attention should be given to it; nor do I consider the remark out of place here, although the object of these letters is to reach the young of the school-going age, through the agency of the teacher. Cicero would have boys taught at school those things which they are to practise as men. The rule applies to youth of both sexes; and when a life-union shall be formed between any two of them,—I care not how much of love or admiration they mutually feel,—there must subsist a sufficient degree of reciprocal respect to secure a courteous demeanor, or affection itself will die out. Let the young cherish this idea, if they would realize, in the future, their previous dreams of connubial happiness.

Servants have a claim to our civility, and it has become proverbial that the true gentleman is known, when away from home, by his deportment to this class of persons.

I have, in these remarks, adverted principally to the *boys* under your charge; but, as far as they are applicable to the other sex, I would have them applied with the utmost stringency. More delicate and refined by nature, there is less occasion for such lessons to them. Still, all coarseness in a girl or young woman is a thousand times more repulsive than when exhibited by one of our own sex.—There is

one point that I may not pass over here. I have spoken of the self-forgetfulness to be practised, and the small personal sacrifices to be made to others, particularly to ladies and elderly persons, in travelling; and I grant that, with comparatively few exceptions, among those who travel much, there is little room for complaint against those who consider themselves gentlemen; and this offers an encouragement to the teacher, that those whom he is now striving to mould, may, as they assume their place among men, present a just claim to that title. The point that I wish to introduce here is this: Throughout New England, such a degree of deference is usually extended to Woman, that there are individuals of the sex who *claim*, with no doubtful expression, certain privileges from our sex, which every right-minded man will be always ready most cheerfully to yield, but which he is not so willing to surrender at command. In our lecture-rooms, in public travelling conveyances, there is an essential difference in the quality or convenience of the seats. A man appropriates a large amount of time, in going early, that he may secure the wished-for accommodation. One of the other sex comes in, an hour afterwards, it may be, and expects that he will surrender the seat to her at discretion. He does so; but, instead of acknowledging his civility by word or look, she looks upon him with a countenance full of indignation or offended dignity, most emphatically expressing the idea, "You are very impertinent to keep me standing so long in the aisle!"

Every day, gentlemen give up desirable seats in railroad cars, and stand till a vacancy occurs; or take an outside seat in an omnibus, to accommodate a lady within, while a toss of the head, indicating impatience that they did not make the movement more readily, is the only return for the civility! Now, I would have boys taught to practise the very extreme of courtesy—to forego the better for the poorer accommodation, in favor of a lady; but it is the bounden duty of the recipient to express, in civil terms, her appreciation of the kindness in such case. This, therefore, is the lesson I would have taught to the girls—or those that occupy the place that *girls formerly* held in schools—by the learning and practising of which only, they can expect to secure their prerogative, or prove themselves worthy the kind consideration of man. Let it be remembered that she has no *legal* claim to this advantage; that its surrender is a free-will offering on the altar of politeness; that, therefore, the return—the simplest and most obvious on her part—can be nothing short of a courteous word of thanks or acknowledgment, endorsed by a kindly expression of countenance. By this, the civility of the man is felt by him to be

fully repaid, and he has hence every encouragement to persevere in his agreeable duty.

I am aware there are numerous exceptions to this mode of receiving these trifling favors; that there exist many examples of all that is elegant in manners, charming in expression, and fascinating in tone, among our accomplished women; but still a false notion prevails with so many others, as to render it important to present the matter as I have done to your attention.

There are few positions in life which furnish so many opportunities for the exercise of good breeding, as travelling. Innumerable occasions occur for removing petty annoyances, promoting the comfort, and adding to the satisfaction of others, which the amiable voyager will not fail to notice and embrace, exciting fellow-travellers to similar acts, increasing the sum of human enjoyment, and proving an authentic claim to the title of a true gentleman.

The late Daniel Webster was remarkable for this; and numerous are the anecdotes related of him illustrative of the fact. Persons familiar with the routes between the seat of government and Boston, during the last thirty or forty years, can state how often the tedium of the journey has been enlivened and charmed by the genuine politeness of the great statesman. Every man cannot be a Webster; but no one is destitute of the ability to be civil and kind, whenever the disposition exists. There is a wide difference in men in regard to refinement of feeling and sensibility to the wants and claims of others; and on this will ever depend complete success in the art of being agreeable, and of ministering to the wants and comforts of fellow-beings.

This, therefore, claims your especial attention. A training in the minute particulars, which perfect and constant good manners involve, should form a part of the labors of every hour while you are in the presence of your pupils; and this to be persevered in to the close of life's toils. The mark which you will thus assist to impress on the successive classes of your school, will be ineffaceable, and continue a glorious monument to your fidelity, long after your mortal part shall have been committed to the tomb, and the undying spirit shall be transferred to the immediate presence, and be beatified by the benignant and unfading smile, of Infinite Love.

## XII. INTELLECTUAL EDUCATION:—PERCEPTIVE FACULTIES.\*

Lectures Addressed to Young Teachers.

BY WILLIAM RUSSELL, LANCASTER, MASS.

[The circumstances in which the following lecture, and the others of the series were delivered, will, it is thought, account for the prominence given in them to many things merely elementary, as regards the science of mind and the philosophy of education. An audience favored with the advantages of high intellectual culture, or of long experience in instruction, would, doubtless, have required a different treatment of many topics discussed in such a course of lectures as the present. But a long series of years occupied in the training of teachers, has proved to the author of the present communication, that the greater number of candidates for the office of instruction, and of those to whom its duties are comparatively new, need nothing so much as an elementary knowledge of intellectual philosophy, and of logic, in their connection with education, as the science which teaches the appropriate development and discipline of the mind.]

*The Teacher's Aim in Instruction.*—Few teachers, at the present day, regard knowledge as the great end even of intellectual education. Few are now unwilling to admit that the chief aim of their daily endeavors, as instructors and educators, should be to train, develop, and discipline the powers by which knowledge is acquired, rather than to attempt the immediate accumulation of knowledge itself. In practice, however, and, more particularly, in the case of young teachers, and of those who follow the occupation as a transient one, and not as the vocation of a life-time, the eagerness for definite and apparent results, or even showy acquirements, too often induces the instructor to confine his attention to the mere mechanism of specific processes,—to the committing to memory, and the repetition of a set task, with or without the aid of explanation. This course he knows will nominally secure a single point in practice or effect. He thinks, perhaps, that, although not fully understood or appreciated now, it will certainly benefit the mind of his pupil at some future day, when his

\*The series of lectures of which the present forms a part, extended to the departments of physical and moral training. But those on the progress of intellectual culture, are selected as more easily presented in the form of a series of articles for an educational Journal.

mind is more mature. Hence, we still have, in our school routine, too much of mere rule and repetition, detached fact and specific direction, the lesson of the hour and the business of the day, and too little of the searching interrogation, close observation, reflective thought, and penetrating investigation, by which alone the mind can be trained to the acquisition of useful knowledge, or the attainment of valuable truth.

*Necessity of Plan and Method.*—The master builder, when he goes to oversee his workmen, and watch their progress in the work of raising the edifice, for the construction of which he has entered into contract, never fails to carry with him his plan of erection, and with that in his hand, for constant reference, gives directions for even the minutest details in working. He does nothing but in execution of his plan, and in strict accordance with it. The master builder thus reads a lesson to the master instructor, (inward builder,) who, although he needs not plan in hand, for his peculiar work, needs it no less, ever present to his mind, if he wishes to become "a workman that needeth not to be ashamed;" if, in a word, he would enjoy the conscious pleasure of referring every day's labor to its destined end of building up the mental fabric in strength, and symmetry, and enduring beauty.

The young teacher, as he reviews the business of the day with his pupils,—and would that this were a daily practice in every school!—should ever refer, in his own mind, at least, to the general effect of every exercise, as tending to the great results of education,—to the expansion of the mind, to the formation of habits of observation and inquiry, to control over attention, to the clearing and sharpening of the percipient faculties, to the strengthening of the mind's retentive power, to securing, in a word, intellectual tendency and character, as the basis of moral development and habit. The teacher, not less than the builder, should ever have, in his mind's eye, the plan of his edifice; and while, during the whole process of erection, he wastes no time on fanciful theory or fantastic ornament, every operation which he conducts should be, to his own consciousness, part of a great whole, tending to a grand consummation. Text-books, processes, exercises, apparatus of every description, are properly, but the pliant tools, or the subject material, in the hands of the skillful teacher, by means of which he does his great work of "building up the building that we are;" and all these aids he arranges, selects, modifies, and applies, according to the system suggested by his plan and purpose.

As the overseer and artificer of the mental fabric of character, the



teacher who is worthy of the name, must necessarily possess a knowledge of the material on which he works. It would be well, were this knowledge always profound and philosophical; and, among the happy anticipations suggested by the establishment of normal schools, none is more cheering than the hope that, ere long, society will be furnished with a numerous class of teachers, competent to understand and guide the young mind through all its stages of growth and development, and furnished with all the requisite means of securing the noblest results of human culture.

Meanwhile, the laborers who are already in the field, and who have not enjoyed, perhaps, extensive opportunities of acquiring a scientific knowledge of the chemistry of mental culture, must be content with such aids as their own observation, reading, reflection, or experience, may furnish.

As a slight contribution to the common stock of professional facilities, the author of the present article would submit the following outline to the consideration of his fellow teachers, as an intended aid to the systematizing of their efforts for the mental advancement of their pupils.

The analysis which follows, extends, it will be perceived, no farther than to the limits of intellectual education. The physical and the moral departments of culture, may be discussed at another opportunity, and must be dismissed for the present, with the single remark, that the natural unity of the human being, demands a ceaseless attention to these, in strict conjunction with that more immediately under consideration.

**PRELIMINARY ANALYSIS.**—Contemplating man's intellectual constitution as subjected to the processes of education, we may conveniently group his mental powers and faculties under the following denominations:—*perceptive*, *reflective*, and *expressive*. In expression, as a function of man at the period of his maturity, the order, in the preceding classification, may be termed the normal or usual one. Man perceives, reflects, speaks. But in education, whether regarded as a natural process or an artificial one, the order of classification suggested by the experience and the history of the human being, in his early and comparatively immature condition, would present the *expressive* powers as in exercise long before the *reflective*, and, subsequently, as the appointed means of developing them, through the medium of language.

**OUTLINE OF INTELLECTUAL CULTURE.**—An outline map, or plan of intellectual culture, as aided by the processes of education, may be carried into practical detail, as suggested by the following prominent points of analysis.

1. Classification of the intellectual faculties, by the different modes, or forms of mental action.
2. Statement of the actuating principle, or impelling power of each class or group of faculties.
3. The tendency, or habit of action in each class.
4. The result, or issue of such action.
5. The educational processes adapted to each class of faculties with a view to aid its natural tendency, and secure its results.

From the imperfection of our language, in relation to topics strictly mental, or purely philosophical, the word *faculties* is unavoidably employed to represent the diversities in modes of action of the mind, which, in itself, is, properly speaking, one and indivisible. But if we keep fully before us the etymological signification of the term *faculties*, (resources, means, powers,) we shall regard it but as a figurative expression, suggestive of the indefinitely diversified states, acts, operations, processes, powers, or modes of action, attributable to the mind,—itself a unit.

Adopting the general classification before referred to, we may commence the partial filling up of our outline with

#### 1. THE PERCEPTIVE FACULTIES.

1. Their *modes* or forms of action :  
a, sensation ; b, perception ; c, attention : d, observation.
2. *Actuating principle*, or impelling force, *curiosity*,—or the desire of knowledge.
3. *Tendency*, or habit of action,—*observation*.
4. *Result*, or issue of action,—*knowledge*.
5. *Educational process*, forms of exercise, or modes of culture, development, and discipline suggested by the four preceding considerations,—*examination, analysis, inspection, interrogation, direction, information, comparison, classification, induction*. In other words, the appropriate *presentation of objects to the senses*, accompanied by mutual question and answer by teacher and pupil ;—with a view to quicken sensation, awaken perception, give power of prompt and sustained attention, confirm the habit of careful observation, stimulate curiosity, and insure the extensive acquisition of knowledge.

#### (1.) CLASSIFICATION OF THE PERCEPTIVE FACULTIES, BY THEIR MODES OF ACTION.

(a.) *Sensation*,—the *organic* action by which objects, facts, and relations are presented to the mind, through the media of the *senses*, and which form the conditions of perception.

(b.) *Perception*, or cognition,—the *intellectual* action by which the

mind *perceives*, (takes notice, or cognizance of,) data presented by the senses.

(c.) *Attention*,—the *mental* action by which, under the incitation of *desire* or *volition*, the percipient intellect *tends*, for the purposes of distinct cognizance, towards the object, fact, or relation presented to it.

(d.) *Observation*,—the *voluntary, sustained, or continuous exercise of attention*, with which the mind directs itself toward the object of its contemplation, for the purpose of complete intuition and perfect recognition.

All the terms now defined, are but different designations for the various forms in which the intuitive action of the intellectual principle is solicited by objects external to itself. The English language, as the product of mind working chiefly in practical directions, possesses little of the clearness and distinctness in nomenclature which the topics of intellectual analysis so peculiarly require. But the four terms used above are sufficient to comprise the prominent forms of perceptive action, in the various processes of intellection. They all refer significantly enough, to the first efforts of intelligence, when, previous to any introversive or reflective act, of comparatively subtle or intricate character, it obeys the instinct of its appetite, and finds its sustentation by feeding on the aliment tendered to it by its Author, in the objects which environ it. To watch and guide, and coöperate with this instructive principle, is the true office of education, as a process of nurture and development, working not in arbitrary or artificial, but in salutary and successful forms,—forms not devised by the fallible ingenuity of man, but by the unerring wisdom of Supreme intelligence.

*Prevalent error in the order of cultivation*.—Contrary, however, to the obvious suggestions of fact, education is still too generally regarded as consisting, during its earlier stages, in arbitrary exercises of memory on combinations of printed characters, abstract numbers, or even the metaphysical relations involved in the science of grammar. The excuse offered for a blind following of precedent in this direction, usually is the peculiar susceptibility of memory, during the period of childhood, and the comparative difficulty experienced in attempts to cultivate it at a later stage. Were the educational cultivation of memory directed to the retaining and treasuring up of those stores of knowledge which are naturally accessible to the mind of childhood, within the range of its daily observation, the plea would be justifiable; man's endeavors would be in harmony with the obvious instincts and endowments of the mind, and would tend to its natural expan-

sion and development. But directed to the mechanical and arbitrary results at which these endeavors so generally aim, their influence is detrimental. Their immediate effect is to quench the natural thirst for knowledge, to create a distaste for intellectual activity, and thus to defeat the best purposes of education.

The law of true culture lies in the primary craving of the young mind for material on which the understanding may operate; digesting it, in due season, into the regular form of knowledge which memory loves to retain, and which judgment ultimately builds up into the systematic arrangements of science.

(2.) CURIOSITY, THE ACTUATING PRINCIPLE OF THE PERCEPTIVE FACULTIES.

*The Teacher's proper place.*—The teacher who enters intelligently upon his work of cultivating the minds entrusted to his care, knows that his chief duty is to cherish the spontaneous action of their powers, and to make them intelligent and voluntary co-workers in their own development. He observes, therefore, with careful attention, the natural tendencies and action of the intellectual system, as the physiologist does those of the corporeal, so as to become competent to trace the law of development, and adapt his measures to its requirements. He thus becomes qualified to take his proper place, as an humble but efficient co-worker with the Author of the mind, recognizing and following His plan, in modes suggested by a wisdom higher than human.

The attentive study and observation of the natural workings of the mind, in the successive stages of its progress, from incipient intelligence to maturity of reason, imply, however, not merely a careful analysis of the facts and modes of mental action, but a watchful observation, with a view to detect, in all cases, the moving power or *impelling principle* of action, to aid and regulate which is the educator's chief work. The ceaseless intellectual activity of childhood, maintained through the various media of perception, furnished by the organs of sense, is obviously stimulated by the constitutional principle of *curiosity*, an eager *desire to know and understand*, and therefore, *to observe and examine*. Hence the irrepressible and searching questions with which children, in the instinct of faith, appeal to whomsoever they think can satisfy their craving for information.

To feed this mental appetite, to select and prepare its proper nutriment, to keep it in healthy and healthful activity, to quicken and strengthen it, to direct and guide it, as a divine instinct, leading to the noblest ends, should be the teacher's constant endeavor. To awaken curiosity is to secure a penetrating and fixed attention,—the

prime condition of human knowledge; and even when it leads no further than to wonder, it is preparing the advancing mind for the awe and the reverence with which, in later stages of its progress, it looks up to the knowledge which is "too high for it."

*The emotion of wonder analogous to the instinct of curiosity.*—Curiosity, like the kindred element of wonder, finds its sustenance in whatever is new to sensation or perception; *wonder*, in turn, leads the mind to dwell on whatever is *strange, intricate, or remote*; *astonishment*, arrests it by whatever is *sudden and powerful*; *awe* commands it by whatever is *vast*; and *amazement* overwhelms it by whatever is *incomprehensible or inscrutable*. Yet all of these effects,—even those which, for the moment, act on the perceptive intellect with a repulsive force that makes it recoil in conscious weakness from the object of contemplation,—are but various forms of stimulating, impelling, or attracting force, acting on the irrepressible vitality of the mind; and no incitements are ultimately more powerful in maintaining the most resolute and persevering activity of its powers.

*Mental effects of novelty and variety.*—In the great primary school of nature, as established and furnished by the Author of all, we observe, accordingly, that in the multiform variety of objects with which the young human being is surrounded, at the first dawning of intelligence within him, the novelty of the whole scene around him, and of every class of objects which it presents, is forever tempting his susceptible spirit to observe and examine, and explore, by the conscious delight which every new step affords him.

*Evils of monotony, and advantages of variety.*—Nor is the obvious design of the great Instructor less conspicuous in the feeling of satiety and weariness which is always superinduced by continued sameness of mental action, whether prolonged in the same mode of exercise, or on the same class of objects. The observant teacher thus learns his own lesson of duty,—to avoid undue limitation in the objects and forms of intellectual action, to shun sameness and monotony of routine, and protracted exertions of attention, as all tending to exhaust and enfeeble the mental powers. His endeavors, on the contrary, are all directed to a due diversity in the presentation of objects, and in the mode of mental activity which they call forth; and, in whatever instances frequent repetition is indispensable to exact perception, he is particularly careful to exert his ingenuity to the utmost, in devising new modes of presentation, so as to secure fresh and earnest attention to the same objects or facts, by the renovating effect of the new lights and new aspects in which he causes them to be viewed.

*Faults in former modes of education.*—It is unnecessary, in our day, to dwell on the obvious faults of the obsolete practice of confining young children within doors at all seasons, compelling them to remain long in one attitude or posture without relief, condemning them to long periods of silence and constraint, and forcing them to con unmeaning and irksome tasks. These injurious practices are now, for the most part renounced; and more genial and rational modes of early education are beginning to prevail. As yet, however, we have only made a beginning. We have reformed our modes of school architecture, and have allowed children the unspeakable benefits of space and air, and more frequent change of place, and posture, and exercise. Objects and pictures are now employed, to some extent, as instruments of mental culture; and the wisdom of all these changes is proved in the greater happiness and better health of our little pupils, and, more particularly, in their greater docility, and their superior intellectual progress, as contrasted with the state of things under the former *regime* of irksome monotony, restraint, weariness, and stupidity. We are very far, yet, however, from approaching the bountiful variety and delightful novelty furnished in the great model school of infancy and childhood, as established by the Divine founder.

*Intellectual furniture of school-rooms.*—Our primary school-rooms should be so many cabinets of nature and art. Every inch of wall not indispensably required for blackboard exercises, should be secured for educational purposes, by specimens of plants, minerals, shells, birds, and whatever else can be appropriately placed before the eye. The arranging, classifying, and describing of these, should precede any analysis or study of letters or syllables. Pictures representing such objects, should form a second stage of exercises in attention, observation, and description, before any alphabetic drilling whatever. The examination of objects and of pictures, should, in a word, form the natural preparatory training of the perceptive faculties for the more arbitrary and more difficult exercise of studying and recognizing the unmeaning, uninteresting forms of alphabetic characters with their phonetic combinations.

*Injurious effects of mere alphabetic drilling.*—Curiosity, the natural incitement of intellect, is easily awakened when we obey the law of the Creator, and direct it to His works,—the natural and appropriate stimulants of the perceptive powers of infancy; but when, leaving our proper sphere, and restricting our educational efforts to the mechanical training of eye and ear, we use these organs, and the informing mind, for the limited purpose of recognizing the complicated and irregular geometrical combinations of line and angle, pre-



sented in alphabetic characters, and repeating the sounds so arbitrarily associated with these, we take the mind out of its native element; we consequently force and distort its growth, dwarf its stature, and enfeeble its powers.

*Effects of the salutary excitement of the feeling of wonder.*—But it is not in the first stages only of mental culture, that the influence of novelty and variety is required as an incitement to observation, by the frequent presentation of new and fresh objects of attention, by the agreeable surprises occasioned by new forms and new stages of animal and vegetable life,—all tending to excite a lively curiosity, which leads, in turn, to careful attention, close examination, and successful study. Curiosity should often be awakened by the yet more powerful influence of *wonder*. Objects rare and strange, combinations intricate and even puzzling, should sometimes be called in, to excite a yet more energetic action of the perceptive intellect, in its endeavors to grasp the objects of its contemplation.

Whatever in nature is wonderful,—whether we employ the microscope, in revealing the intricate structure of plant or insect, in the minuter and closer examination of the works of the Creator; or the telescope, in the contemplation of the starry heavens, and the study of the magnitudes and motions of the bodies which people the depths of space,—all should be brought to bear on the young mind, to call forth that sense of wonder which so delights and inspires it, and prepares it, at the same time, for the influence of those sentiments of awe and reverence with which the advancing intellect learns to trace the signatures of Deity.

(3.) OBSERVATION, AS THE TENDENCY OF MENTAL HABIT, UNDER  
THE INCITING INFLUENCE OF CURIOSITY.

*The natural effect of intellectual instinct.*—The motive power, or impelling force, by which, in the ordinations of the mind's omniscient Author, its perceptive faculties are incited to activity, and induced to render their tribute to the resources of intelligence, consists in that restless desire to observe, to examine, and to know, which constitutes man a progressively intelligent being. Impelled by this insatiable mental thirst, he is led instinctively to those streams of knowledge which constitute the waters of intellectual life. His perceptive powers thus stimulated, acquire a tendency to ceaseless activity,—a trait which forms the peculiar characteristic of the early stages of his mental progress, and which is greatly quickened by the vividness of sensation in the constitution of childhood. Hence the promptness and versatility of attention at that period, and its remarkable susceptibility to the influences of cultivation and discipline.

These aids, it is true, are, as yet, too scantily furnished in the processes of education; and, even without them, the human being, as he advances under the promptings of instinct, and the guidance of self-intelligence, attains, as in the case even of the savage, to a high degree of perceptive power. The keen, quick, and penetrating glance of his eye, the acuteness and certainty of his ear, the readiness and exactness of his observation of every object within the range of his vision, the searching closeness of inspection with which he examines everything new or uncertain, often furnish an impressive lesson on the value of training, to those whose means and opportunities of intellectual culture are so superior to his own.

*Effects of cherishing the habit of observation.*—The habit of observation, duly cherished in early years, by the judicious care of the parent and teacher, becomes the security for ample acquisitions in the field of knowledge, and for the daily accumulation of mental resources and of intellectual power. The observant mind, like the close-knit net of the skillful fisherman, encloses and retains the living treasures within its sweep, and deposits them, for use, in their appropriate place. The undisciplined, inattentive, unobservant spectator seizes and retains nothing in his slack and ineffectual grasp.

*Suggestive significance of terms in intellectual and educational relations.*—The etymology of the word *apprehension*, (seizing, grasping, laying hold of,) suggests an important lesson regarding the value of intellectual training, as dependent on the habit of attentive and close observation. The word *attention*, (tending, reaching, or stretching toward,) is not less instructive in its signification, implying the *tendency*, or the gravitating of the mind's perceptive power toward the object of notice, for the purpose of cognizance, as the first stage of intelligence. The term *observation*, (watching, with a view to obey or follow,) is yet more monitory to the teacher; as it intimates that the true study of external nature demands vigilance, docility, and fidelity; in one word, the devotion of the whole mind to the business of intellectual acquisition. *Perception*, (taking, through a medium,) refers us back to the humble office of sensation, as indispensable to the process of *taking into* the mind the treasures of knowledge offered to the grasp of sense, for the purpose of transmission to the percipient power, the inner principle of intelligence. All of these terms, in the nomenclature of mental science, tend to the same important end, in the uses of practical education: they all point to the appropriate discipline of the perceptive faculties, by means of objects addressed to the senses, as the primary stage of intellectual culture.

*Educational errors.*—Former modes of education rendered the use of terms such as the preceding, a nullity, or an absurdity. The child shut up within the naked walls of a school-room, seated on his uncomfortable bench, and mechanically conning by rote, the ill-fitting names of alphabetic elements, or trying to piece them into syllables, had little use of the precious gift of *sense*, but a few lines and angles to *perceive*,—unless a friendly fly should happen to alight upon the page of his primer,—no inducement to *attention* but the fear of Solomon's prescription for "minds diseased," nothing half so interesting to *observe* as the little winged being accidentally crawling on the page before him, displaying the curiously constructed mechanism of its form, its gauzy wings, and many-feathered little limbs, or stopping now and then, to dry-rub instead of washing them, and its tiny head, and flexible bit of neck, almost too diminutive to be seen. But woe to the little student of nature, in the genuine act of *observation*, if he should lift his eye from his book, and follow his brisk little visitant flying off to perform the visible miracle of walking up the perpendicular plane of the window pane, or the yet more puzzling feat of walking the ceiling with his head downward.

*Rational method.*—The child, in the case supposed, indicates the real want of his nature, and mutely, but most eloquently, pleads for a lesson on insect life, (entomology,) before one on the alphabet. Furnished with the data which the lesson on insect life and form, character and motion, would present to his eye, he would be receiving a rational preparatory discipline of attention and observation, in the close and careful examination of all the details of shape and configuration, exhibited in the living and attractive object before him. His recognition of figure and outline, thus secured, he would, in due season, transfer, easily and willingly, to the artificial display of them in the forms of printed characters.

*Benefits resulting from the early formation of habits of attentive observation.*—The early training of the perceptive faculties, by a varied and genial discipline of the power of attention, so as to render the habit of observation an unfailing characteristic of the man, becomes doubly valuable, as a result of education, when we regard its effects on the intellectual tastes and pursuits of individuals. A taste for the study of nature, early formed, leads to the practice of collecting specimens, and thus furnishing the means of successful study to the person himself, who collects them, and at the same time to all whom he is disposed to aid in such pursuits. Were even the elements of botany, geology, mineralogy, and zoölogy, generally adopted, as they ought to be, as subjects of attention in primary education,

a knowledge of natural science, would, ere long, be diffused throughout our community; a taste for the study of nature would become an intellectual trait of our people; the pursuit of agriculture, arboriculture, and horticulture, would be more intelligently and more advantageously followed; the citizen would doubly relish his season of respite in the country; taste and intelligence would extend their influence over all modes of life; and science would be unspeakably a gainer, in its noble purposes and offices, by the multitude of active minds and busy hands called in to collect, and contribute materials for its various forms of investigation. The field of human knowledge might thus be indefinitely enlarged, and its advantages and enjoyments be more extensively diffused.

But it is not merely as a matter of scientific progress, or of taste and enjoyment, that the proper training of the perceptive faculties, by means of objects and observation, rather than by the materials furnished in books, becomes an important consideration in the planning of modes of education, and methods of instruction. Practical utility, also, has its claim to urge in this relation. The larger number of persons, even in the most advanced communities, as regards civilization and refinement, are occupied in some form of active exertion, as the daily vocation of individuals; and while no generous mind can ever look on education as a benefit or a blessing, if it is to be used as a means of training for the occupation of a given caste, it is not less true, that every individual, in whatever class of society, would be vastly benefited by an early course of cultivation on all subjects akin to those which are to form the staple of his mode of life. Botany, geology, chemistry, entomology, for instance, all have their relations to agriculture; and a few hours devoted weekly to the elements of these sciences, will, by their inspiring influence on the young mind, expedite rather than retard the ordinary processes of school education.

*Importance of commencing early the study of Nature.*—But while no formal or extensive study of these branches can be rationally attempted in primary education, it is most emphatically true, that, in the study of nature, more than in other forms of intellectual action, nothing can be advantageously done but on condition of an early beginning, and the judicious improvement of the opportunity afforded during the period of leisure and susceptibility which occurs to all human beings but once in life. Childhood and youth are, by the Creator's appointment, the period for forming taste and acquiring habits. The most resolute struggles in after years, seldom succeed in effecting a change of mental occupation, or in lending attractive inter-

est to new pursuits. The "pliant hour" must be taken for all processes of mental budding, grafting, or pruning, as well as in those of the orchard. An early dip into the study of nature, will serve to saturate the whole soul with a love for it so strong as to insure the prosecution of such subjects for life. The season is auspicious; the senses are fresh and susceptible; the mind is awake; the heart is alive; the memory is retentive; nature is yet a scene of novelty and delight; and application is a pleasure. The twig may now be bent in the direction in which the tree is to be inclined.

*Universal susceptibility to instruction, drawn from Nature.*—In a diversified experience of nearly forty years in the field of education, one teacher, at least, can testify that he has not yet found the mind so dull, or the heart so callous, as to resist the attractive intellectual influence of the analysis of even one plant or one mineral. The mysteries of beauty and awe which hang over such objects, as an investing celestial glory, entrancing the imagination and the heart, and all but translating the intellect itself, have a power of attraction which the dullest, coarsest, and most brutalized boy in a ragged school, cannot resist. But of the moral influence of early education, when directed to the aspects of nature, it will be more appropriate to speak in that special connection.

*Effects produced on mental character, by the study of Nature.*—*The solidity and the firmness of mental character*, which are acquired by the study of *things*, preceding and accompanying that of words and books, are a natural effect of the early and seasonable cultivation of the habit of observing, analyzing, comparing, and classifying, which even the slight examination of any natural object induces.—A clear, decisive, and discriminating judgment, and a retentive memory, are among the other fruits of that mental training which commences with definite objects, capable of being analyzed and reconstructed by the natural and appropriate action of the young mind, in virtue of its own powers and native tendencies. But these considerations, also belong properly to another and more advanced stage of intellectual discipline, at which *the reflective faculties*, and maturing reason, are beginning to put forth their claims for culture and development, in addition to the preparatory training which they may have received in the blended exercises of sense and intellect, in the action of the perceptive faculties.

(4.) KNOWLEDGE, THE INTELLECTUAL RESULT OF THE ACTION OF  
THE PERCEPTIVE FACULTIES.

Impelled by the instinct of curiosity, and guided by the habit of observation, the young mind,—whether more or less assisted by

education,—advances to the goal designated by creative Wisdom,—*the acquisition of knowledge*, the appointed means for erecting the fabric of character on the scale outlined by the Great Architect, but left to man's industry and intelligence, for the filling up and the symmetry of detail.

The part of education which lies more immediately before us, as the object of our attention, being the cultivation of the intellect, the acquisition of knowledge becomes, in this view, a consideration of primary importance, as, at once, a source of intellectual wealth and power, and a most effective means of mental development. Knowledge, as a result of culture, is undoubtedly of inferior value to discipline. But the efforts put forth in the acquisition of genuine knowledge, are, in themselves, a disciplinary process, and the indispensable instruments of further cultivation. Yet more,—intellectual acquirements are true and durable riches,—valuable for their own sake, not merely from the resources which the accumulation of them places at the mind's command, but from their own intrinsic value, as imperishable because intellectual things, and as the successive steps of mental elevation in the scale of being. In reference to intellect, knowledge is, in one most important sense, an end, not less than a means and a measure of progress. Profound, extensive, and varied knowledge, is one of the crowning glories of man, as an intellectual and progressive being, capable of ceaseless development and acquisition. Most emphatically is this true of him, the soundness, and exactness, and completeness, of whose knowledge, are the assurance that he shall be a safe and competent guide along the path of education.

*Actual knowledge.*—But what is knowledge? How is it acquired?—not by the repetition of the words or the processes of others, not by the transfer from one mind to another of the verbal statements of fact or of abstract principles, not by the formation of vague and partial notions, formed on superficial data, and floating loosely in the mind, not by a half perception or half consciousness of something indefinite or supposititious, not by an assent to rash assumptions or confident assertions, not by the recollections of extensive reading, or perhaps, of attentive listening, retailed in fluent expression, not by accumulating the amplest furniture of second-hand theories and systems, whether plausible or absurd, or even logically consistent. *Knowledge is what we have experienced in our own intellect*, by means of our own observation or reflection, the fruit of personal perception, or of conscious reason, acting on the positive data of sensation. So narrowly must the term be limited, when we refer to the action



of the perceptive faculties, or to their appropriate training and discipline. Knowledge, in these relations, is *the accurate interpretation of the facts of sense*, in matters, usually, of color, form, number, weight, or sound, and the relations which these bear to one another in the processes of induction and classification. With the other sense of the term, in which it refers whether to truth or to theory, and implies the deductions of reflective *reason*, we have not, at present, to do. It belongs to a subsequent stage of the analysis of the modes of mental action, as subjected to the processes of intellectual cultivation, and occurs in connection with the discipline of the "reflective" faculties.

*Literal accuracy of verbal statement, a false test of knowledge.*—The acquisition of knowledge, however, is, notwithstanding all our advances, of late years, in the philosophy of education, too generally confounded with the repetition of the verbal statements of definitions, rules, and systems, as contained in books, even in relations so palpable as those of form and numbers. The test of knowledge, accordingly, with some teachers, to this day, is, even in the exact sciences, the fluency with which a definition or a rule is orally repeated, verbatim, from a text-book, and the mechanical accuracy or despatch with which a correspondent problem is solved, or a proposition demonstrated.

*True knowledge experimental and personal.*—True perceptive knowledge, on the other hand, or that which is actual and personal, implies, in all relations of form and number, that the individual who possesses it, has seen the object in question, or its representative, in palpable shape, in surface or in outline, that he has subjected it to actual measurement and comparison, or has an exact image of its form and configuration before his mind, that he has actually counted or grouped objects in numbers presented to the eye or to the mind, or that he has compared these with one another, and traced their relations, by strict and exact observation; and the proper office of the text-book is but to confirm and embody the result, and classify it in the exact language and systematic arrangement of formal science, as the specimens are labelled and shelved in a collector's cabinet. The use of scientific method, in the statements of text-books, is but to give logical arrangement to mental acquisitions, not to induce mere assent, whether silent or oral, and not to facilitate the mere repetition or verbal enunciation of propositions.

*The proper business of the teacher, as a superintendent of mind.*—The true office of the teacher is to see that the pupil is led by his own conscious experience and observation, through the process of

perception prescribed in every exercise which he attempts; that the operation is intelligently performed at every step, and the result rendered certain, as far as the limitations of human faculties permit. By frequently repeated performance of the requisite process, the principle in question thus becomes an integral part of personal knowledge with the individual; and his faculties receive, at the same time, a discipline which gives them facility and force in all analogous procedure in which expertness and skill are desirable attainments. In due season, also, he is able to sum up his acquirements in knowledge, in the clear and definite and precise language which science demands, and of which his text-book furnishes a perfect specimen on which he can rely.

At first, however, the young operator may need even the palpable aid of actual objects; and the judicious teacher knows well when to give, and when to withhold such help, when to appeal to the black-board, and when to have his pupil rely on the mind's eye, during the successive stages of intellectual training. He is careful, however, not to slight or hurry over the business of the rudimental course, in which the reference to actual objects is the main reliance for a sure personal knowledge of the facts of form and number. The collateral discipline, also, arising from the attentive observation and careful study of plants, minerals, leaves, insects, and other natural objects, the intelligent teacher values highly, from the power of attention, and the habit of exact observation, which it tends to secure, by the definiteness which it gives to the action of the mind, and the certainty which it stamps on knowledge.

*Contrasted examples of neglect and culture.*—True education has no more striking proof of its good effect than may be observed, when the apathy and ignorance of young persons who have been allowed to neglect the observation and study of nature in childhood, and afterwards to go through a class-drill on a given branch, by means of a text-book, are contrasted with the intelligent personal interest and intimate knowledge of those who have been wisely induced to turn an early attention on the productions of nature, and thus to acquire an early love for such studies, and a life-long enjoyment of the pleasures which they afford. Adults of the former class take little interest in the "floral apostles" of the poet, who are ceaselessly preaching the perfection of their Source, or in the pebble at their feet, which, to the intelligent eye, is the medallion struck by the Creator's hand, in commemoration of one of the epochs in His reign. These eloquent monitions of a perpetual Divine presence, are, to such minds, the dead letter of a handwriting which they have not been accus-  
tom-

ed to trace, and on which their listless eye falls, as does that of the sceptic, on the page of written revelation. The mind, on the other hand, which has been early trained to an intelligent personal interest in the productions of Creative wisdom and power, enjoys a personal property, and a personal reference, in every object in nature, finds, in "the meanest flower that blows, thoughts that do often lie too deep for tears;" and ultimately to it,

"The delicate forest flower,  
With fragrant breath, and look so like a smile,  
Seems, as it issues from the shapeless mould,  
An emanation of the indwelling Life,  
A visible token of the upholding Love,  
Which are the soul of this wide universe."

The definiteness and the certainty, however, which give conscious life and power to all such knowledge, depend, to a great extent, on the faithful training which the perceptive power has undergone in the nurturing stage of education. The poet whose words of truth and love convince us that he has attained to the rank of an inspired seer, set out on his career from the common starting place of infancy, in blank ignorance of every object and of every fact around him; and his brother bard whose office it is to announce, in the language of astronomy, the harmony of the spheres, and read to mankind the legislation of the heavens, had no vantage ground at his outset on those excursions which ultimately extend beyond Orion and the Pleiades. Nor was there any special dispensation antecedent to the slow but sure processes of culture, in favor of the electrician who, in the maturity of his acquirements, became competent to transmit and diffuse intelligence with the literal rapidity of lightning; and what shall we say of the barefooted mason's boy, who commences his career of "glory and of joy," plodding over the stone which he has broken with his unpracticed apprentice hammer, and, at length, reads, from that same fragment, to the delight and astonishment of mankind, the facts of an antediluvian world? All the treasures which such minds have brought from their various explorations, as tributes to the treasury of science, and to man's dominion in the sphere of knowledge, are but the varied fruits of unwearied, progressive observation, accumulating fact upon fact by the patient process of attentive examination of objects, and by the skillful exercise of well disciplined perceptive faculties. Such noble efforts of mental power we contemplate with a delight mingled with reverence and gratitude to their authors, as benefactors of the race. The worship which human ignorance, in its wondering admiration, extended, of old, to the mythic demi-god and hero, might, we think, have been pardoned had it been offered to

our venerated contemporary Humboldt, who, at an age rarely attained by modern man, withdraws, at intervals, from the onerous duties of a councilor of state, to record the acquisitions of a mind which, from early years, has been exploring the wonders of nature, and now, year after year, pours forth another and another book of the great epic of creation, to which he has so appropriately given the sublime title, "Cosmos."

The written life of this truly great man, however, only enables us to trace the progress of another watchful observer of nature, as, step by step, he observes, examines, compares, classifies, aggregates, and accumulates, till he stands before us an intellectual Atlas, upholding the sphere of human knowledge. Liberal education, favorable opportunities faithfully improved, an insatiable thirst for knowledge, and devoted application to the acquisition of it, explain the wonder. Let us inquire then, for a moment, into the processes by which human culture achieves the miracle of such results.

(5.) THE APPROPRIATE EDUCATIONAL PROCESSES FOR THE EXERCISE, DEVELOPMENT, AND DISCIPLINE, OF THE PERCEPTIVE FACULTIES.

*The law of progressive intellection.*—Watching the successive steps of man's intellectual development, as he advances, consciously or unconsciously, in pliancy and power of mind, we see him first incited by an irrepressible principle of *curiosity*, stimulating him to watchful attention, *close observation*, and *minute inspection*, for the purpose of acquiring a satisfactory *knowledge* of things around him; that he may, in due season, be prepared to enter upon a new and higher cycle of his ceaseless progress, and from the materials of *perception*, feed the *reflective* faculties of *judgment* and *reason*, which lead to the higher goal of *truth*, where alone the cravings of intellect can find rest and satisfaction.

*Provision of educational apparatus.*—The first care of the watchful and intelligent teacher, as the guide and director of the intellect, is obviously, in compliance with the law of intellectual progress, as traced above, to make liberal provision of the palpable material of *perception*, by which the instinctive appetite of curiosity is at once fed and stimulated, attention awakened, observation secured, and knowledge attained. Objects abundant in number, and varied in character, form and aspect, but chiefly those furnished by nature, and, more particularly, those which occur most frequently within the range of the child's actual observation, are the true and appropriate apparatus of his education. To the examination and inspection of these his mind naturally tends; to the process of extracting knowledge from these, his perceptive powers are expressly adapted; in such

occupation he takes delight; working on such material, he is inspired by the consciousness of progress and of perpetually augmenting vigor; and thus he becomes a willing and efficient, because an intelligent agent in his own development.

**DISCIPLINE OF THE SENSES.—Sight; color.**—Sensation, though the humblest form of mental action, being the first in the natural order of intellectual development, suggests to the parent and teacher the great importance of a due attention to the early cultivation of the senses, especially of those whose action is so distinctly intellectual in character and result is that of *sight* and *hearing*. The proper organic training of the eye implies, what is too often overlooked, an attentive regard to *color*, as well as *form*; the former of these being very early developed, and evidently, in all normal cases, a source of peculiar delight in infancy, not less than of high æsthetic gratification in subsequent appreciation of beauty, both in nature and art. Long before the infant shows any distinctive recognition or appreciation of form, it manifests a keen perception and intense pleasure in the observation of all objects of brilliant color.

Under the management of the judicious mother, balls of the three grand primary colors of the painter,—blue, red, and yellow,—form an inexhaustible source of pleasure to the infant eye; while they give an unconscious exercise and discipline to the perceptive faculty, and prepare the way for the subsequent, definite, and intelligent recognition of the great lines of distinction drawn on the field of vision by the Hand which has blended color with light. Field or garden flowers, or even wayside weeds, placed within the range of the eye, serve a similar purpose. Subsequently, the principal intermediate *gradations* of color, as they occur in objects of nature or of art, in varied tints and hues, may be presented to the sight, in due succession, as a pleasing exercise for the faculties of childhood, in its progress. For this purpose, flowers, the prism, the tints and half tints of the clouds, the glow, or the hue of evening and morning skies, throughout the year; the ever-varying colors of autumn, from their fullest flush to their gradual waning and decay; all are admirable materials for the intellectual and æsthetic cultivation of the human being, along the successive stages of his development. The mind early trained to a sense of the beauty of color, can hardly be withheld, in after years, from the profoundest application to the study of light, as “a feast of nectared sweets, where no crude surfeit reigns.” Purity and perfection of taste in art, are another sure result of early cultivation, in this respect. How much intelligence, and how much intensity of pure and even sacred gratification, may thus be superadded to the sentiment

of reverential delight in the works of the Creator, it would be difficult for even the most skillful master of expression to say.

*Form.*—The early cultivation of a discriminating perception of the distinctive characters of *form*, through a carefully conducted, progressive discipline on objects submitted to the eye, is one of the most purely intellectual processes to which the mind of childhood can be subjected. The cube, the sphere, the cylinder, the cone, the pyramid, when judiciously introduced among the playthings of early childhood, as was strikingly exemplified in the schools of Pestalozzi, become unconsciously, but most surely, a basis and standard in all the relations of form; and, under the guiding suggestions of the teacher, they tend to give the mind definiteness and certainty in its action, on whatever relates to geometrical details of figure in nature, art, or mechanism. The primary truths of solid, superficial, and linear geometry, are thus imbedded in the mind, identified with its action on all visible objects, and help to constitute the observer an intelligent spectator, through life, of the grand elemental forms of the universe.

*Measure.*—Convenience and utility, too, have their claims to urge in favor of an early discipline of the eye on all details of *measurement*. An exact appreciation of measure, for in-door purposes, should be laid in permanent inch, and half and quarter inch marks, on the school-room wall; and to these should be added those of the foot and the yard. A mile, with its subdivision into halves, and quarters, should be measured off, as a permanent standard for the young eye, as it approaches or leaves the threshold of the school-room. The acre and the rod, and all other details of land measure, should be made familiar to the eye of boyhood, by express measurement, in the nearest accessible field or square.

*Number.*—Veritable ideas of number belong, also, to the early discipline of the eye, and are greatly dependent on the actual presentation of objects, for this special purpose. We read, in the accounts of one English exploring voyage, that the inhabitants of one group of islands in the Pacific, had no definite ideas of any number over five; and experienced teachers are well aware that, in the case of pupils accustomed to depend on the mere verbal memory of the words which represent numbers, and unprovided with a firm basis of actual observation of palpable objects, and the personal knowledge which such experience gives, there is an obstinate difficulty in forming definite and distinct conceptions of numbers, which resembles, too nearly, the confusion and helplessness of mind felt by those unfortunate island-



ers, in their attempts to transcend the limits of their terminal number, five.

Most of the early arithmetical operations of very young pupils, should consist in handling and counting visible objects, in enumerating marks, in grouping objects and marks, in numbers gradually progressive, from the smallest to the largest in amount; so as to secure expertness and promptness in the process of addition, in varied forms. Successive exercises should follow in multiplication, in subtraction, and division, all performed, day after day, on visible objects handled, and on marks expressly made for such purposes of training, before the purely mental processes of arithmetic are attempted on abstract numbers, even of the smallest groups. A prevalent error with teachers still continues to be that of merely exemplifying true teaching in such forms as have been mentioned, for a limited period, too limited to tell upon the habits of the mind. Long continued training alone, is adequate to the proper purposes of discipline, certainty and skill, namely, in forming combinations which must sometimes be both extensive and complicated. It is unreasonable to expect rapidity and expertness in the processes of mental arithmetic, without the preparatory discipline which results from the actual observation of the facts of number and combination, in objects presented to the senses. Such discipline alone, can yield that personal knowledge, and that conscious grasp of mind, which give clearness and certainty to the action of the intellect in arithmetical operations.

*Natural objects : animated forms.*—But it is not merely the contemplation of inanimate objects which the mind, in childhood, requires as a foundation for true perception and exact observation, or as a means of securing prompt and sustained attention. The liberal training of the senses, as a primary step in intellectual cultivation, extends the study of color, form, number, and sound, to the rich domain of animated nature, in the animal as well as the vegetable kingdom, and thus brings the vivid sympathy of the young heart with kindred life and motion to the aid of the opening intellect. From the *pebble*, the *shell*, the *flower*, and the *leaf*, the judicious mother and teacher will pass to the *insect*, the *bird*, the *quadruped*, and the *fish*; and as their individualities and diversities are successively enumerated and dwelt upon, the details of color, form, and number, arrest and fix the volatile attention of the child, and win him to habits of close, minute, and exact observation.

*Analysis and classification*, the two great master powers for the acquisition of knowledge, in whatever direction, are also thus called in to aid the progress of the young observer in his study of nature.

The tendency of the mind to *observe, compare, examine, and classify* whatever is submitted to its action, thus early encouraged and stimulated, becomes an habitual trait of the mental character, and tells, with powerful effect, on the intellectual progress of the individual, in the more abstract relations of *language* and of *mathematics*. It is a great error to suppose that, because of the intense pleasure which attends the study of natural objects, there is not a profound and rigorous discipline of mind attending the equally intense intellectual action which accompanies the pleasure. *Analytic examination* is one and the same process, whether it is directed to the component parts of a *plant* or of a *word*. Keen and penetrating attention, close, minute, and thoughtful observation, exhaustive analysis, systematic arrangement, and methodical classification, are equally indispensable in the one case as in the other. But in giving precedence to the study of the object, and postponing that of the word, we are obeying the ordination of the Creator, who has furnished the apparatus of the first stages of human development, in the natural objects which first solicit the attention of the child, by the attractions of beauty and pleasure.

*Pictorial art.*—Nor is it only by means of natural objects that the sense of sight contributes to the exercise and discipline of the perceptive intellect. Art, too, renders here a rich tribute to the resources of education. Models and pictures, and the humblest attempts to produce these, as repetitions of the mental impressions received from nature, give inexpressible delight to the susceptible and imitative spirit of childhood. Their effect is invaluable, in training the perceptive faculties to the keenest, closest, long-sustained action, without the sense of weariness or fatigue; and their inspiring and refreshing influence gives vivacity and force to the whole mind. The clear perception, fixed attention, watchful observation, and active exertion, which they both require and cherish, particularly when the child is permitted to attempt to produce imitative efforts of his own, in drawing or modelling, meet so successfully the craving of the young spirit for action and endeavor, that they become powerful aids to mental development. The working hand is thus brought to the aid of the active eye, as a test, at the same time, of its correctness of vision, which is proved by the degree of truthfulness in the delineation. This productive method of exercising the perceptive and executive faculties, yields to the child the peculiar delight of having achieved something palpable, as a proof of power, and is, meanwhile, working in his mind the silent effect which is to appear, in due season, in the symmetry and gracefulness of his handwriting, and the neatness of whatever he attempts, whether in plan or execution.

*The ear : music.*—The varied world of sound, comprising *music* and *speech*, is another wide field of culture to the intelligent mother and the elementary teacher. The extent to which the sense of sight may be cultivated, as regards precision and certainty and truth of action, is indicated in the perfection which is attained by the sculptor and the painter, whose copies of nature are, in some instances, so faithful, and so beautifully perfect, as to confer an immortality of fame upon their authors. But little notice, comparatively, is taken of the delicate susceptibility of the *ear*, in relation to the offices of culture. Yet no sense, not even that of sight itself, is capable of attaining to so high perfection by the aids of training and discipline. The innumerable minute distinctions of sound, which the performance of even a single piece of music, by a single performer, often requires; but, still more, the multitude which the composer of one of the master-pieces of harmony must be capable of recognizing, discriminating, and combining, with a measured exactness transcending all other efforts of perceptive intellect: these remind us, most impressively, of the extent and value of cultivation, when we recall the fact, that the performer and the composer commenced their artistic training on the common footing of all human beings, a percipient mind, and an organ capable of telegraphing to it the notes of the singing bird, the song of the mother or the nurse, or the artless strains of some juvenile performer on pipe or flute.

*Speech.*—We have yet another proof of the susceptibility of the ear to the influences of cultivation, when "the well trod stage," in the exhibition of a play of the 'myriad-minded' Shakespeare, displays in the voice of the skillful actor, the whole world of human passion, with its ever-varying tones, uttered in the language of poetic inspiration, now moulded by the serene influence of heavenly contemplation, as when Lorenzo speaks to Jessica, while they sit on the moonlit bank, of the "smallest orb which she beholds, still quiring to the young-eyed cherubim;" now breathing the deep tones of Hamlet, solemnly musing on the mysteries of life, and death, and destiny; now the hollow mutterings of conscious guilt from Macbeth, while meditating the murder from which he yet recoils; now the hoarse accents of remorse wrung from the bosom of him whose "offence is rank" with the blood of "a brother's murder;" now the scarce articulate horror of "false, fleeting, purjured Clarence;" the maddened scream of mingling grief and rage from the injured mother, Constance; the love raptures of the empassioned Romeo; the ringing laughter of Mercutio; or the torture of Othello, as he fluctuates from

the ecstasies of overflowing love and joy, to the curses of hatred, the outbursts of grief, and the agonies of despair.

In all these forms the well trained actor, by the mastery of his artistic skill, exerts a power over the sympathies of his audience which far transcends the highest achievements of representative art in any other form. The arduous training to which the histrionic artist subjects his voice, in order to produce such effects, shows to what extent the cultivation of the ear may be carried. It is by the indications of this faithful, prompting monitor, that he guides every step of his vocal efforts, till he attains to those consummate effects of genius which, in some instances, have conferred on the individual a fame coëxtensive with the civilized world. Yet he who is, perhaps, thus renowned, commenced his early efforts, with the usual stumbling utterance of a school-boy.

*Enunciation.*—Passing from the higher sphere of music and poetry, in their influence on the cultivation of the intellect, through the medium of sense, we come to one of the most important stages of education, in the discipline of the voice for the useful purposes of speech, as dependent on accuracy of ear,—the only reliable guide to correct results. The unconscious freedom with which we utter thoughts in our native tongue, leaves all persons who are not advantageously trained by precept or example, exposed to the evils of incorrect habit, in utterance. The extensive prevalence, also, of corrupted usage, in the negligent practice of general society, increases the liability to error in the style of the individual. There was wisdom in the Roman maxim, that the nurses of children ought to be persons of correct habit, in enunciation. The influence of early example, is the most binding rule of speech, as the baffled and disappointed teacher, after all his endeavors, is often made to feel.

One early begun and long continued daily practice, in primary training, should consist in the careful, correct, and distinct *articulation* of the component elements of speech, as accomplished in our own language. These should, at first, be practiced with reference to *the exact sound of every letter of the alphabet*, singly and separately; afterwards they should be enunciated in the groups which constitute *syllables*, on a graduated progressive scale of difficulty, till every variety of combination can be uttered with perfect distinctness and perfect fluency; finally, *the pronunciation of words* should be practiced in a similar manner, till the style of the young learner is freed from all corrupt and local mannerism, and he is prepared to take his place among the cultivated in speech as well as thought, and, by his personal manner of expression, to evince the style of educated habit as preferable to that of vulgar negligence.

*Elocution.*—In the secondary and in the more advanced stages of education, the discipline of the ear should be extended, so as to embrace all the refining and highly intellectual influences of music and poetry, as combined in *elocution*.

Intellect, feeling, and imagination, are all inseparably united in the appropriate expression of sentiment, as embodied in the language of *oratory* and *poetry*; and their finest effects in utterance depend on a nice susceptibility of ear, which culture only can secure to full extent. Music and elocution, the most humanizing of all arts, prescribe the apparatus and the forms of training to which the ear should be subjected, through the whole course of education. In the analysis and the discrimination which vocal discipline demands, in the recognition which it secures of the almost infinitely diversified and ever varying character of tones, in their expression of intelligence or of emotion, there is an admirable discipline of intellect implied, which, though less formally displayed than in other modes of exercise, is not, on that account, the less effectual. Of the high *moral* value of the susceptibility which such training tends to cherish, it is not now the appropriate time to speak. We may advert to it under a subsequent head.

The subject of *healthful physical training* is not now under consideration; yet sensation, and consequent perception, are dependent on the condition of the organs of sense, and therefore of the whole corporeal frame, which must be in a healthy condition to secure the natural and true action of nerve and brain,—the apparatus of perceptive action in the intellect. The attentive and efficient cultivation of health should be regarded, not merely as a condition of intellectual life, but as the first step in the formation of intellectual character. The clear eye and the quick ear of health are highly intellectual in their tendencies, and are for ever detecting and offering material for the intellect to examine or explore. The dull organs of a morbid frame, on the contrary, are too torpid to respond to the awakening touch or beckoning invitation of nature, and leave the clouded intellect to sleep or to dream.

PROGRESSIVE CHARACTER OF THE PROPER DISCIPLINE OF THE PERCEPTIVE FACULTIES.

The varied exercises of eye and ear, as organs of sentient mind, should always, under the guiding management of the teacher, advance in intellectual character from stage to stage, so as to secure the benefits of a progressive discipline, commencing, indeed, at the threshold of sense, but ever tending more and more inward, till they become nearly inseparable from the action and character of pure intellect. They thus render the keen eye and the quick ear prompters to

clear perception, fixed attention, penetrating observation, careful comparison, and discriminating judgment, and so conduct to consummate intelligence.

The teacher who works in intelligent coöperation with the constitution of the beings whose character it is his office to mould, is content to labor patiently in the field of *sensation*, as, at first, forming the sole ground on which he can rationally meet the dawning mind, with the hope to exert a genial and effectual influence on its development. He dwells long, accordingly, on the prominent outward characteristics of objects, as most accessible to the unpracticed faculties of infancy, as best adapted to elicit their activity, and tempt them forth to more and more energetic effort. He furnishes, with no sparing hand, the opportunities of intuition, in the abundance and variety of the objects which he presents to the senses. He selects these, however, with such judgment and skill that the young mind shall be incapable of regarding them with a mere vacant aspection or listless intuition, but, on the contrary, shall be made to feel that there is within them a soliciting power, a magnetic attraction, to which its own nature responds, and by which it is led on, from stage to stage, till it finds itself in possession of the mental treasures of clear perception and definite knowledge.

VOLUNTARY EXERCISE OF THE PERCEPTIVE FACULTIES, A CONDITION  
OF INTELLECTUAL DEVELOPMENT.

*Attention as a voluntary act.*—The teacher who recognizes the law of intellectual growth, is aware that, in adopting measures to aid the progressive unfolding of the perceptive faculties, he may trust largely to the mind's own instinctive and spontaneous tendencies to action, if only due provision is made for mental activity, by supplying the objects of sense which naturally invite and stimulate perception. But regarding the mind as a voluntary and self-directing agent, he knows that unless its own efficient coöperation is secured in the processes on which its energies are exerted, its activity will be ever tending to subside, or to degenerate into mechanical and unmeaning routine. The result, he is aware, must, in such circumstances, be a morbid intellectual inertness of habit, or a deceptive show of forced organic action, instead of the movements of mental life. His great endeavor, therefore, will be to succeed in evoking ATTENTION,—that power of the mind which brings into vigorous and efficient activity the percipient intellect,—that power which, by its own innate force, impels and sustains perception, in whatever direction it is called to act, or in whatever process it is employed.

The customary definition of this power, or faculty, as *voluntary per-*



*ception*, suggests to the educator his true office in cultivating and developing it. It implies that he no longer restricts his efforts to presenting such objects as solicit and secure the mind's notice, by the law of natural instinct, but that, addressing himself to the principle of *volition*, he calls it forth, as a moving force, impelling the mental machinery from within; and enabling it to arrive at knowledge, by its own action. The true teacher never commits the error of resorting to the exercise of his own will, instead of that of his pupil, as the propelling power. He is aware that his success, as an educator, is to be measured, not by the force with which he can bring his own power of compulsion to bear on the faculties of his pupils, but by the intensity with which he can bring their mental energies into voluntary play, in processes which leave a *residuum* of living force, as a result on mental character. He knows well that no degree of exertion can command attention, by a mere act of will, at the moment; that, by the law of the mental constitution, a train of circumstances must be laid before the desired result can be ensured; that an exercise of will is not, in the natural analogies of mental action, a merely arbitrary act of self-determination; but that, on the contrary, *will* is solicited by *desire*; a feeling or affection of the mind being the natural and necessary preliminary to volition; and that the intelligent guide of the intellectual powers must, therefore, appeal to *feeling*, as the natural and reliable prompter of the will. In other words, the educational process, rightly conducted, is so contrived as to create a desire to arrive at the given result, and proceeds upon that security for the action of will in determining the direction of the mind, and sustaining the exertion of its powers.

Trained under such influences, a disciplined attention is the sure fruit of culture; and power of attention is not unjustly termed the key which unlocks all the gates of knowledge, and secures an entrance to its innermost secrets of intelligence.

Attention, as a power or mode of intellectual action, regarded in connection with the cultivation of the perceptive faculties, requires the application of the various expedients by which it may be rendered *prompt, earnest, close*, and *continuous*, as the exigencies of subjects and of the mind may demand.

*Promptness of attention.*—Such results imply that the educator, as a skillful gymnasiarch in the arena of mind, trains it through every variety of evolution by which it may be rendered *quick* in movement, ever ready for instantaneous action, so as to secure that pliancy and versatility by which it can at once direct itself to its object, or relinquish one object or train of thought for another, when

the moment for change has arrived, and pursue the object of its aim with whatever velocity of motion may be requisite to reach it, in due season.

Speed and despatch, however, not haste and hurry, should be the ends at which the teacher aims in all drilling processes. A wakeful and lively attention, ever on the alert for action, implies sound and healthful and invigorating training. A harassed and exhausted mind, dragged or driven along the path of exercise too arduous, or too long continued, can never yield the results of genuine discipline.

With very young pupils, especially, the obvious indication of nature is, make free use of *striking* and *attractive* objects, illustrations, and remarks. One object at a time; words few and well chosen; no lagging or drawing on the part of either pupil or teacher, yet no hurry, no impatience, no impetuosity; proceeding smoothly and swiftly, but quietly and gently in all movements; yet sometimes, for the purpose of arresting attention, adopting the grateful surprise of a sudden change, briskly executed:—these are the characteristics of skillful and genial training, such as quickens the life power of intellect.

*Earnestness of attention.*—The power of *earnest* attention is another trait of mental habit to which the successful teacher directs his endeavors, as an invaluable attainment to be secured, through his agency, by his pupils. To this end, he avoids carefully all exercises not interesting or inviting to the young mind. *Objects, pictures, penetrating questions, vigorous exertion*, in varied forms, for mind and body,—strenuous endeavor called forth, at intervals, to cope with *difficulties, interesting facts* stated, or stories told,—the wonders of nature and of art exhibited, interesting *conversation* maintained, in which the pupils interchange thoughts with the teacher, *word-pictures* of peculiar power and beauty, selected from the poets, early attempts at *drawing*, exercises in *planning* and *building*, tangible illustrations in architecture, masonry, carpentry, or joiner-work, in juvenile style, for hours of recreation, the *analysis of plants*, the tracing of the *anatomy* of animal forms, in specimens of *insect* organization, in the osseous construction of *birds, fishes, reptiles, &c.*; all lessons made, as far as practicable, matter of *active work*, rather than merely passive attention; the ceaseless use of the *slate*, the *pencil*, and the *blackboard*, in recording, repeating, and illustrating every thing which admits of such forms of expression; these, and every other resort which ingenuity can invent, are all required in the exigencies of actual teaching.

Earnest attention and strenuous application, on the part of pupils, are the natural result and unfailing reward of the teacher's own facility and skill in devising and executing inspiring models of whatever

he would have his pupils execute. The efficacy of his own ear, eye, and hand, secured by his own self-culture, is the only guaranty of his success, as a faithful trainer of the perceptive faculties. The general introduction of music and drawing, now in progress in all well-taught schools, together with the increasing attention given to elementary lessons in botany and mineralogy, is opening a highly beneficial course of discipline for the young mind, in whatever concerns the power of earnest and effective attention, as an attribute of intellectual character.

*Closeness of attention.*—The thorough discipline of attention, however, as the directing force of the perceptive faculties, implies that it is not only rendered prompt and earnest in action, but *close* and *minute* in its application. A faithful *analysis* is conditioned, in all departments of study, on a clear and distinct perception of *every particular*. Nothing must be suffered to escape notice. No analysis can be complete that is not exhaustive, to the extent of its object. Close and minute inspection is indispensable for the exact observation of many of the most instructive and the most beautiful of the details of nature, in the forms of animal and vegetable life,—for the successful watching of the processes of chemistry,—for forming exact estimations of quantity and number,—for tracing the diversities of even inanimate form, the delicate gradations of color, the minutest difference of sound and form, in the details of language, together with all the nicer distinctions, and discriminations of thought, when embodied in words, for the purposes of communication.

To secure these results, we are again directed to the early and effectual training of the perceptive faculties on the objects of nature, as the first step in the true education of the mind. The minutest point of form in the structure of leaf or blossom, the child traces with delight; and this native tendency of mental action, extended in its range of objects, and confirmed by the law of habit, becomes not only a source of intellectual enjoyment, but of conscious power and ultimate success, in all investigations, not merely of nature and external objects, but, by the inevitable law of analogy, in every department of research on which the intellect is competent to enter. The power of close attention, sharpened by judicious early training of the perceptive faculties, attains in due season, to consummate certainty and success in those processes of minute analysis which are, in many instances, the crowning glories of science.

No contrast can be more striking than that exhibited in the two cases of neglect and culture, in this relation of mental action. On the one hand, we have the loose, superficial, imperfect attention, which

glides listlessly over the surface of things, without note, and consequently without knowledge; on the other we see an acute, keen, penetrating, searching inspection, which nothing escapes,—a mind whose knowledge is exact and complete, whose information is the result of narrowly examined and well ascertained particulars.

The intelligent teacher, knowing that the keenest exercises of discriminating judgment are, by the law of mental constitution and habit, not unfrequently dependent on the close examination of details, on the power of tracing and detecting the minutest shades of difference in objects and their component parts, leads his pupils, by the closeness of his questioning, to follow the minutest ramifications of diversity, amid apparent similarity, in the objects which he uses as instruments for sharpening their perceptions to the keenest inspection of every feature which is accessible to the discernment of sense. Beyond this point he passes to the use of the microscope, one of the most valuable implements ever devised as an aid to the processes of human culture. A cheap instrument of this description, in the hands of an attentive teacher, has a power which no degree of mental inertia can resist. It has been known to convert, in a few days, a whole school of uncultivated, thoughtless, turbulent children into an attentive, thoughtful, inquiring, docile, and orderly company of little students of nature.

A few minutes occupied daily in observing and tracing the forms of objects, in detail, is, in addition to its ultimate effects on mental habit, of the greatest service in the humble relations of alphabetic teaching. A ground work is thus laid for the accurate recognition of the elements of form combined in the visible shapes of printed and written characters, and a surer and more rapid, because a more intelligent, progress secured, as regards the accuracy of the eye in recognizing, or of the hand in repeating the lines, angles, and curves, which constitute the complex forms of letters. Accustomed to the close and minute analysis of form on visible objects of different sorts, the child, if permitted to treat his alphabetic characters in a similar way, takes delight in detecting and naming their constituent parts; and, particularly, when he is permitted to try to delineate them for himself, and thus, as it were, bring them under a kind of ideal subjection to his power.

The discipline of particular observation and searching attention, early secured, becomes, in due season, a complete guaranty for the correct and successful performance of the various gradations of mathematical problems in which a well trained and exact attention is required, whether for the relations of form or those of numbers; and throughout the successive stages of education, in all its departments.

The well trained mind becomes ultimately like the thoroughly magnetized instrument, which leaves no stray particles of the steel-filings scattered abroad, but agglomerates them every one to itself; with a certainty which renders the act no unfitting analogy for illustrating the universal law of gravitation.

*Tenacity of attention.*—Having used his best endeavors to render the faculty of attention prompt, earnest, and close, in its action, as the guide of the perceptive faculties, the teacher has yet another character to stamp upon it. He would have it not only quick and vivid, and searching, but *tenacious* and *persistent*. From an element volatile, fluctuating, and superficial, in its first manifestations, he would have it become, at length, a power fixed, and steadfast, and unflinching. Patiently training it through its incipient stage of short, feeble flights, he inures it to lengthened excursions and sustained exertions, such as all valuable mental attainments demand. Here, again, Nature comes to his aid, furnishing him liberally not only with numerous instruments of discipline in her manifold forms, as objects, individually, attractive and interesting, but with those *complexities* of shape, and color, and number, those *organic relations*, and *organic contrivances*, those *compound bodies*, those *intricate combinations of elements and processes*, which all require not only an earnest and close, but a long-sustained, unflagging attention, as the only condition of faithful and exact observation and accurate knowledge.

The intelligent teacher watches carefully the progressive development of his pupil's power of attention, and exercises it according to the increasing force and firmness of its grasp, so as to secure a perpetually *growing power of retention*, through all the successive exercises which he contrives for its discipline, on *natural and artificial forms*, their various *combinations, numbers, powers, and characteristics*, of whatever denomination in the vocabularies of science and art.

Regarding attention as the master power in the grasp of the perceptive faculties, he values, most of all, its strength and retentiveness, its ability to maintain an unbroken sequence of activity, such as not unfrequently demands the incitement of the most earnest desire to arrive at the wished for result, and produce, in turn, the most resolute determination of the will to persevere in action till the result is mastered.

Here, again, the teacher finds his best resort in the objects and processes of nature; unwearied attention is in no way so effectually secured, without undue or fatiguing exertion, as in analyzing and inspecting the various *parts of plants*, or the *anatomical mechanism* of animal forms, and, more particularly, of insects. While no humane or enlightened teacher would ever propose even one half hour of

unbroken attention, on the part of very young pupils, twice that time may safely and advantageously pass in the suggestive questions of the teacher, and the ready answers of the pupils, during the examination of a single specimen of the productions of nature. In such circumstances, instruction takes its best form,—that of interesting *conversation*; and time flies only too fast for both parties in the exercise. Another sustained effort of attention may, by a judicious change in the form of mental action, be as easily secured by permitting the pupil to make such attempt as he can at *delineating*, in detail, the parts of the object which he has been contemplating; still another may be obtained by permitting him to describe in *words*, and at full length, what he has observed; and even the giant Despair of “composition” may be conquered by allowing the pupil to write his description.

Such processes prepare the young student in due season, for those arduous and unflagging exertions of attention by which he ultimately succeeds in solving lengthened and complicated problems in mathematics, disentangling long and inverted sentences by tracing the grammatical relations of their parts, and following, with patient assiduity, every step in extended and abstruse processes of reasoning on subjects more purely mental in their character.

(To be continued.)



## IX. ORIGIN OF THE TREATMENT AND TRAINING OF IDIOTS.

BY EDWARD SEGUIN.

NONE but God can do anything of himself alone. Hence, the question of priority in human discovery is always contested. If the truthful history of any invention were written, we should find concerned in it the thinker, who dreams, without reaching the means of putting his imaginings in practice; the mathematician, who estimates justly the forces at command, in their relation to each other, but who forgets to proportion them to the resistance to be encountered; and, so on, through the thousand intermediates between the dream and the perfect idea, till one comes who combines the result of the labors of all his predecessors, and gives to the invention new life, and with it his name.

But, in good faith, this man is but the expression,—honorable and often honored,—of human fraternity. And, it is only from this point of view that the full benefit of the discovery is seen: being the common property of mankind, it gives us wider and deeper feelings of mutual dependence or solidarity. A short notice of the origin of the treatment and training of the unfortunate idiots will be an illustration of this law of mutual dependence.

In the year 1801, the citizen M. Bonnaterre discovered, in the forest of Aveyron, France, a wild boy. This naked boy was marked with numerous scars; he was nimble as a deer, subsisting on roots and nuts, which he cracked like a monkey, laughing at the falling snow, and rolling himself with delight in this white blanket. He seemed to be about 17 years of age. Bonnaterre permitted this wild boy to escape, but afterwards retook him and sent him, at his own expense, to the abbé Sicard, director of the Asylum for the Deaf and Dumb, at Paris.

Sicard had just succeeded the illustrious abbé L'Épée; and, Bonnaterre thought him to be the most suitable man to perform the miracle of which he dreamed,—the education of this creature, the most inferior that had ever been seen under the form of humanity; but, he was mistaken. Sicard exhibited, for some days, to the learned and curious, the being, who was constantly throwing away his clothes and endeavoring to escape, even by the windows, and then left him to wander, neglected, under the immense roofs of the school for deaf mutes.

But, the wild boy of Aveyron had been seen by all Paris. If the crowd of visitors had found him a subject of disgust, he excited in the mind of the thinkers and philosophers a livelier interest. Some of those who had held conversation with Franklin on the liberty of the world, were still living, and by them the subject was brought before the Academy of Sciences, where it produced interesting and fruitful discussions.

Two men were particularly conspicuous for their interest in the wild boy of Aveyron, viz.: Pinel, physician-in-chief for the insane, author of the *Nosographie Philosophique*, who declared the child *idiotic*,—the sequel proved him correct; and Itard, physician-in-chief of the deaf and dumb, who asserted that the subject was simply *entirely untaught*. Itard did more; he named him VICTOR, doubtless as a sign of the victory which education should achieve in him over brute nature. But, he did more yet; he received him into his own house, employed a governess for him, and devoted to him a portion of his time, otherwise so fully occupied, for six years.

This devotion of Itard to this child and to science, is the more worthy of praise as, based upon a metaphysical error, his efforts were constantly met by disappointment; and yet, he never yielded to the feelings of discouragement. His errors were these: He obstinately saw in the *idiot* the savage; and, resting in his studies, as well as in his faith, on the materialistic doctrines of Locke and Condillac, his teachings sometimes reached the senses of his pupil, but never penetrated to his mind and soul. He gave to his senses certain notions of things, he even excited in him a physical sensibility to the caresses bestowed upon him; but, he left him destitute of ideas and of social or moral feelings, incapable of labor, and, consequently, of independence. He was, in the end of that painful and fruitless trial, immured in a hospital, where he passed the remainder of his life.

But, if these six years were almost lost to the wild boy of Aveyron, they bore their fruit in the mind of Itard. Although closely occupied in his investigations of the diseases of the ear, he often thought of the experiment of his youth, and sometimes he regretted the renown which attached itself to his name as a surgeon,—a renown that sent him patients from all parts of Europe, but left him no leisure for his philanthropic study and experiment.

It was in this state of mind that Itard, in 1837, was consulted by the celebrated Guersant, principal of the children's hospital of Paris, in the case of a young idiot. "If I was younger," cried Itard, "I would charge myself with his care; but, send me a suitable man, and

I will direct his efforts." Guersant spoke to him of myself. Itard was a fellow student in medicine of my father. "If Seguin will accept," Itard did me the honor of saying, "I will answer for the result." From this sketch, it will be seen that three men took the lead in the grand enterprise of the amelioration of the condition of idiots: Bonnaterré, the generous and enthusiastic protector of the boy of Aveyron; Pinel, whose discriminating diagnosis has so much illumined the subject of idiocy; and, Itard, whose devotion, patience, and sagacity opened up the method of amelioration.

When Guersant offered me the perilous honor of continuing the unfinished labor of Itard, I was just recovering from an illness, thought at one time to be mortal. However, the desire of sending my name to the ears of one whom I expected never to see again, gave me strength to attempt the enterprise. Itard communicated to me the details of what he had done with his first pupils, and I studied all that had been attempted or performed after him.

Gall, giving a strong impulse to the investigation of the functions of the brain, had called up the question of the cause of idiocy: a skillful theorist, he thought he had discovered in idiots proofs of the truth of his system of phrenology. The authors who succeeded him, Georget, Esquirol, Lelut, Foville, Calmeil, Leuret, Pritchard, seem, on the contrary, to have studied idiocy only to use its phenomena for the destruction of the system of Gall, but not for the benefit of the poor idiots, whom they declared incurable. With their single polemical object in view, they spent thirty years in measuring and weighing the heads of living and dead idiots, and they arrived at the following conclusions:—

1. No constant relation exists between the general development of the cranium and the degree of intelligence.
2. The dimensions of the anterior part of the cranium, and especially of the forehead, are, at least, as great among idiots as among others.
3. Three-fifths of idiots have larger heads than men of ordinary intelligence.
4. There is no constant relation between the degree of intelligence and the weight of the brain.
5. The different degrees of idiocy are not measurable by the weight of the brain.
6. A cranium, perfectly formed, often encloses a brain imperfectly formed, irregular, &c.
7. Sometimes the brain of idiots presents no deviation in form, color, and density from the normal standard; it is, in fact, perfectly normal.

All these anatomo-psychological facts they professed to have established;\* but, of the education and treatment of idiots, not a new word was uttered during thirty-five years. At the end of that time my first labors were performed in the studio of Itard, where he bestowed on me the most valuable gift an old man can offer to a young one,—the practical result of his experience.

Itard was often sublime during these interviews, when a prey to horrible sufferings, symptoms of his fatal malady, he discussed with me the highest questions. His features would contract, and his body writhe in his anguish, but his mind never lost his clearness and precision for a moment. I there learned the secret of his influence over the idiots, as I did that of his weakness in philosophy, till the time when he died at Passy, in 1838.

The desire of knowing if *mental medicine* had no better remedies than his writings, for my first patients, induced me to conduct them to Esquirol, to whom we went every week. Esquirol, the oracle of the mental medicine, had nothing to teach me; but, he was a man of exquisite tact, and he gave me most excellent counsels upon the application of the processes which I suggested to him. His approbation encouraged me in my efforts, while I was maturing in my mind the theory which he never knew.

This theory, my only superiority over my predecessors, is no more separated from the men of our times, than were my early experiments from the men of the preceding generation.

The "new Christianity," by St. Simon, the oral and written lessons of his now lamented disciple, Olinde Rodrigue; the "philosophy of history," by president Buchez; the "encyclopædic review," by Carnot and Charton; the "popular encyclopædia" of Pierre Leroux and Jean Reynaud,—my familiarity with all these, except the first,—such are the living springs whence I drew the elements of my initiation to the mysteries of the laws of philosophical medicine.

The bases of these laws are these: unity of God, manifested in his three principal attributes; unity of man in his three manifestations of being; the idiot, like other men, a likeness of God, infirm in the modes of expression of his trinity. 1st. Infirm in his mobility and sensibility. 2d. Infirm in his perception and his reasoning. 3d. Infirm in his affections and will. One and triple infirmity, reparable in the individual, as it was in the human race, for the idiot by a proper training, for mankind under the sweet, but terrible lessons which history records.

---

\* See compendium of practical medicine, by Monneret et Fleury.

Is it not worthy of the spirit of the nineteenth century, thus to make the idiot,—this creature which, up to the present time, has been looked upon with disgust,—serve to enlighten the science of anthropology, to prove that the true theory of man's nature is derived from a better knowledge of the Divinity, and thus to withdraw one of those veils spread between us and our Creator, called mysteries now, but which the future generations will recognize as truths.

But, it is not sufficient to have discovered the true philosophical principle; it is necessary to apply it. In this application, pure practical work, tested only by experience and comparison, all that was not historically and chronologically in its place, was recognized as false, useless, and impossible. After such an elimination of every arbitrary means of instruction and progress, the treatment of the idiot then followed the same march which the education of the human race had been pursuing during the lapse of ages. So, the first necessity of a people and of an individual, is that of an active and sensitive force, by which man is enabled to go, act, combat, and triumph. This necessity caused, for the primitive races, the introduction of athletic sports and exercises; traces of which we find even on the monuments of Thebes and Luxor. Upon these gymnastics of the primitive peoples, was founded the first steps in the education of idiots.

For those individuals who are destitute of spontaneous action, imitation was found one of the most powerful means of progress. The excitation of the imitative powers ought, then, to hold a prominent place in all the treatment, physiological, psychological, and moral. The sequel of this observation was as follows. In the physiological order, imitation, applied to gestures and gymnastics, gives to idiots attention and aptitude of the body; while, imitation, transferred from unmeaning gestures to those gestures that have a private or social object, prompt to voluntary, regular action, which can produce *work* at any time, however it may be, simple or complex; the ability to labor is thus conquered.

It is one of the characteristics of idiocy, that it is constantly represented, in an individual, by one or more than one anomalies, in the functions of the senses, viz.: deprivation, imperfection, dullness, or exaltation. These sensorial symptoms of idiocy, so variable in their manifestations, since they affect sometimes the touch, sometimes the taste, sometimes the sense of smell, sometimes the ear, and oftener still the sight, served so well to corroborate the doctrines of the materialists of the 18th century, that Itard considered them all as constituting idiocy. In consequence, his treatment was wholly directed to the aim of repairing the disorder of the senses. The dogma of the

19th century teaches us, on the contrary, that the senses are not the mind, far less the soul; that the sensorial development is produced in the race, as it comes out in the individual, immediately after the muscular development; and that, these being accomplished, the mind and soul, the intellectual and the moral principle remain untouched. Immense revelation! since that which was regarded by the materialists as the end, is nothing more than the end of the first phase of the human trinity, and, in consequence, as the prolegomena of the treatment of idiots.

Thus it appears that the men who have given the formulas for the treatment of idiots are no less than the leading minds of the 19th century, they are those men who have rescued the science of anthropology, taking it up at the point where the *Bible* leaves it, making man, says the *Book*, "in our image after our likeness."

The senses, being in man, the doors through which the mind issues and enters, we have treated them in idiots, as in the material world, entrances oblique, too narrow, or defective in any way are treated, i. e., we have straightened or enlarged them. We have also profited, by these openings, to introduce, besides the material notions of the physical properties of bodies, a few simple ideas relating to simple and useful, or agreeable objects. These first ideas have embraced two classes of phenomena.—1st, the class of the *wants*, which attaches an idea of usefulness to each object; a class of unlimited extent, which gradually leads a man from the want of an artificial sole for his foot, to the research of some propulsive agency swifter than steam. 2d, the class of *wonders*, which offers pleasure and discovery, food to the fancy, to every one, to the savage as well as to the civilized, to the idiot as well as to the sage. Michael Montaigne calls curiosity, "that charming fury which urges us all to the incessant search after some *new novelty*." Idiots do not seem to possess that natural curiosity,—mother of the beautiful and of all progress—but the teacher can excite it in him.

In order to accomplish this, the idiot should receive a course of treatment similar to that which developed the primitive nations. The glorious effulgence of the light, the gloomy shadows of the darkness, the striking contrasts of colors, the infinite variety of form, the smoothness or hardness of substances, the sounds and the pauses of music, the eloquent harmonies of human gesture, look and speech, these are the powerful agents of their transition from physiological to mental education.

Away, then, with books! Give us the Assyrian and Jewish mode of instruction. The representative signs of thought where painted,



engraved, sculptured in deepness or in relief, sensible to the eye and to the touch; the tables of the mosaic laws appear in the midst of thunder and of the lightning's flash; in the same way, the symbols, under which is concealed the modern mind, should appear to the idiot, under these historic and powerful forms, so that seeing and feeling all at once, he will understand.

In most cases, speech does not exist among idiots. To teach them to speak, it is necessary to bear in mind,—1st, that the primitive languages are monosyllabic; 2d, that they have a rhythm like music; 3d, that they represent first the wants heightened to the pitch of the acutest feelings. When the idiot can speak, read, or count, to some extent, he has acquired the instruments, by the aid of which the education of the mind, already begun, is possible. Let us go on, then, in this second period of the teaching, till the heavens and earth fail to furnish us with the means of progress. The intelligence of every man has its limits; that of the mind of the idiot will be more restricted. In the foregoing task, there has been a period to teach the idiot to walk, to hold himself erect, to grasp with the hands, to carry, to act, to look, to hear, to speak, to read, and all these follow each other without confusion, like points of different perspective in a landscape; but one principle has accompanied and controlled all these successive steps—the principle of *moral training*.

That which most essentially constitutes idiocy, is the absence of *moral volition*, superseded by a *negative will*; that in which the treatment of an idiot essentially consist is, in changing his *negative will* into an affirmative one, his *will* of loneliness into a will of sociability and usefulness; such is the object of the *moral training*.

The idiot wishes for nothing, he wishes only to remain in his vacuity. To treat successfully this ill will, the physician wills that the idiot should act, and think himself, of himself, and finally by himself. The incessant volition of the moral physician urges incessantly the idiot out of his idiocy into the sphere of activity, of thinking, of labor, of duty and of affectionate feelings; such is the moral treatment. The negative will of the idiot being overcome, scope and encouragement being given to his first indications of active volition, the immoral tendencies of this new power being repressed, his mixing with the busy and living world is to be urged on at every opportunity. This moral part of the training is not something separate, but is the necessary attendant and super-addition upon all the other parts of the training, whether we teach him to read, whether we play with him the childish game, let our will govern his, if we will enough for himself, he shall become willing too.

The importance of this, the *moral treatment*, has led to inquire into its origin. Long before the physician had conceived the plan of correcting the false ideas and feelings of a lunatic by purgatives, or the cranial depressions of an idiot by bleeding, Spain had produced several generations of monks, who treated, with the greatest success, all kinds of mental diseases, without drugs, by moral training alone. Certain regular labors, the performance of simple and assiduous duties, an enlightened and sovereign volition, watching constantly over the patients—such were the only remedies employed. "We cure almost all of our lunatics," said the good fathers, "except the nobles, who would think themselves dishonored by working with their hands." Last and fatal word of an expiring aristocracy,—*"Idleness or death,"* cried she, even in her insanity, and soon the people answered, "Die, then, for those alone who labor have a right to Life and Liberty."

Is it not a strange thing to contemplate!—These men, withdrawn from the world and from human science, without other knowledge than that of the Christian charity,—but in the fullness of their only and holy duty, giving to the insane, calmness in the place of fury, attention in the place of dementia, useful labor in the place of impulse to destruction; thus, in fact, driving out the demons from these wandering souls. They knew nothing, these poor monks who said to their patients—"In the name of God the creator and orderer, control thy actions.—In the name of God, the great thinker of the universe, control thy thoughts.—In the name of God, the great lover, control thy passions." These poor monks knew only to act in virtue of their faith, and we—who have with the sublime but blind faith, the reason for its exercise, we do no better than they did, only we know why and how we do it, when we apply their treatment to the idiot.

Thus, thanks to the idiots, that which was, in the hands of the monks of Spain, a divine mystery, is become a fundamental principle of anthropological science. Such is the origin, partly divine and partly human, of the treatment and education of idiots, though we can clearly see that God is at the bottom of this and of all our great discoveries.

## X. MORAL AND RELIGIOUS INSTRUCTION IN PUBLIC SCHOOLS.

---

REMARKS ON the Address of the retiring President, being in order, PROF. CHARLES DAVIES, offered the following resolution :

*Resolved*, That the sentiments expressed by our late President, PROF. BACHE, in his recent address, that moral and religious instruction should form a prominent element in all our systems of public education, is in accordance with the firm belief and earnest convictions of this Association.

PROF. DAVIES, addressed the Convention at some length in support of this resolution. He spoke in terms of warm commendation of the stand taken by Prof. Bache, and Prof. Pierce, upon the subject of moral and religious instruction in the schools, and desired that the Association should be understood by the public to endorse the sentiment so ably expressed by them.

HON. S. S. RANDALL, seconded the resolution, and urged its adoption. He thought it to be necessary in order that the public should know that the Association were not, as it had been sometimes feared, in favor of excluding the religious element from our systems of education.

REV. GORHAM D. ABBOTT, was pleased to hear this resolution introduced. If passed unanimously, after a general expression of concurring sentiment, its influence could not fail to be of great importance.

DR. PETERS, wished to express his gratification at the introduction of the resolution, and on account of the language which had given occasion for it. It had been said 1800 years ago, that 'these things were hid from the wise and prudent, and were revealed unto babes.' In our day, the wise and prudent talked as little children, in heeding the teachings of our Lord and Master.

PROF. ALFRED GREENLEAF, of Brooklyn, said, that he could bear testimony to the consistency of Mr. Randall's remarks with the practice of the public schools of the city of New York ; for on a visiting tour through the schools of this city, he had found religious instruction in all the schools, from the Free Academy, down to the very lowest form of the Infant School.

MR. AMOS PERRY, of New London, Conn., said, that in traveling through Europe, he had heard the American system of education stigmatized as an ungodly and Christless system. He should rejoice to have that misapprehension by the passage of the resolution corrected.

PROF. CALEB MILLS, of Indiana, desired simply to make known the fact that the State of Indiana, had placed the Bible at the head of their text-books.

MR. GIDEON F. THAYER, of Boston, favored the resolution. In

Massachusetts for some years it had been at the option of the teacher to open the school by the reading of the Bible, and by prayer, or not, and in almost all cases it had been attended to. But at the last session of the legislature a law had been passed requiring the Bible to be read every day in the schools.

REV. DR. TALMADGE, of Georgia, said:—that as he was the only delegate from several Southern Atlantic States, he felt called upon to say that in that section the great question of religious education was becoming an absorbing topic. They were beginning to feel that intellectual education is a curse, unless moral and religious education go with it, and he therefore desired an expression of opinion on the subject, by the Association.

PROF. E. A. ANDREWS, of Connecticut, rejoiced at the introduction of the resolution, and at the occasion which had called for it. He was gratified also, that there had been such a universal expression of sentiment in favor of the importance of religious training.

PRES. TAPPAN, of Michigan, said, that Professors Bache and Pierce, had done honor to themselves by making the statements referred to in the resolution. He did not wonder at it; he should have wondered if they had not; for an undevout astronomer or scientific man is the maddest of all men.

PROF. AGNEW, of Pittsfield, Mass., obtained the floor, but yielded to

BISHOP POTTER, of Pennsylvania, who remarked, that the passage of the resolution might involve more serious consequences than would at first appear. He inquired whether the language ascribed to Prof. Bache was correct; whether it was certain the language used in his address, or adopted by him; that he had declared that religious instruction should be a prominent feature "in all our systems of *public* education."

PROF. DAVIES stated, that previous to offering the resolution, he had submitted it to Prof. Bache, and asked his permission to introduce it; and the sentiment had his sanction.

BISHOP POTTER. I am very sorry to be compelled to interpose a little doubt, not as to Prof. Bache's opinions, although stated more specifically in the resolution, than I understood him to express them in the address, or than as held by him a few years ago, but as to the portentous question, whether religious instruction shall take a leading place in our *public* schools. I say that is a portentous question; a question involving a problem that is not yet solved, a problem, the solution of which, has thus far been attempted in vain in our father-land, and the attempt to solve which has, I think, materially retarded the progress of public instruction in Great Britain.

Mr. President, if it is safe for anybody to say a word upon this subject in the direction in which I am speaking, it must be safe for a minister of Christ, safe for one who has proudly identified himself always with our public system of instruction, and has indignantly resented always the imputation that it is a godless system. As it is now, it does not attempt dogmatically to teach the religion of Christ; and yet it is not un-chris-

tian; it is not anti-christian; it is not godless. It might be a great deal more religious; I trust in God that it will be so. But I really doubt whether the adoption of resolutions of this kind, by a body which has no authority, no influence except a persuasive moral power, is calculated to accelerate that consummation most devoutly to be wished. I have been delighted with the exhibition of the spirit manifested here this evening. It is a delightful exponent of what I believe to be a great movement in the American mind; a movement towards the clear profound conviction that moral and religious culture must have their appropriate place in the great business of education, or we do not achieve our whole work of education in our public schools. After all, there is a better school than the public school, and that is the family, and I may add, the parochial or Sunday-school, the cataphetical class, the Bible class. And although in our public schools, I think a great deal more religion can be taught than has been taught, yet if we are to reach that most desirable end, I think we should not send abroad proclamations which promise more than we can perform.

I will go no further into the subject now. I think I have indicated that there are difficulties about this question; and if you wish to penetrate and leave the system of public instruction by true religious spirit, you are not to do it by resolutions, not by talking, but by working. As is the teacher, so, we were told to-day, is the school; subject to no limitations. There is no educational proposition more sound or more important. Just in proportion as we succeed in raising the vocation and character of our teachers, just in that proportion we guaranty that they shall be godly and Christlike men and women. Good, conscientious devout men and women, are the only people who will ultimately come up to the standard of requirement which I believe is rapidly becoming universal throughout the United States. And if you place in every primary school a devout conscientious enlightened Christian heart, you have accomplished the great work. It is not the amount of dogmatic instruction they give upon religion, but the mighty argument in favor of religion which transpires every day and hour of their lives, which is to be desired. But you must recollect that they can only teach the ten commandments, the Lord's prayer, the Sermon on the Mount, and a few other similar passages, before they get over into the stony region of polemics; God save the schools from that. (Applause.)

PROF. AGNEW, wished to be heard for a few minutes before the vote was taken. He deeply sympathized with the views expressed by Bishop Potter; and his vote might seem singular if given without explanation. Further debate was cut off, in order to listen to a lecture by PROF. HUNTINGTON, of Cambridge, appointed for this evening; but after the conclusion of the lecture.

PROF. DAVIES, asked permission to withdraw his resolution. He was confident that it could not be passed. He had never heard Bishop Potter discuss any point in which he did not fully convince his audience of the wisdom and propriety of his position. All would carry home in their

hearts the sentiment expressed by the resolution, and if its public expression could do harm, it might well be forborne.

PROF. AGNEW said, that this struck him as a very singular proceeding. Those in favor of the resolution had been heard at length, while those opposed to its present form, had had no opportunity to explain.

PROF. DAVIES demanded the previous question; but was not sustained.

REV. MR. HAZELTINE, should regret the withdrawal of the resolution. He wished it to be passed as the sentiment of the Association to go out to the country. It was needed, if not in Massachusetts or New York, at least in the Western states, where infidelity is springing up, and the Bible is not used in the schools.

PROF. PROUDFIT, suggested, that as it was already late, it would be better to leave the subject for consideration to-morrow; and accordingly, on Thursday evening,

The Association resumed the consideration of the resolution offered last evening by Prof. DAVIES, who moved the following substitute therefor:

*Resolved*, That the recognition by our late President, Prof. BACHE, in his retiring address, of the preëminent importance of moral and religious culture in the training of youth, meets upon the part of this Association with the profoundest sympathy and approbation.

MR. RANDALL. I move that the original resolution be introduced as a substitute. I offer it because I think that resolution expresses, or was intended to express the sense and the religious conviction of this country. No one doubts the "importance of moral and religious culture in the training of youth." That is not the principle we are called upon here to express as a public body. We are the representatives of the educational public;—collegiate university, and common school education, are represented here. I desire that the sentiment originally propounded by the son of the daughter of Benjamin Franklin, and adopted also by one of the most Scientific men in the Union, that sentiment which was received here with so much enthusiasm last evening, shall be directly voted upon. I desire to see what is the sense of this Association upon it. I believe that moral and religious culture should enter as an element into all our systems of public education, and by that sentiment as an educator, I am prepared to stand or fall. We have tried the experiment in this city. We know that it works well. We have here, upwards of a hundred public schools, and in them all, there are not more than half a dozen in which religious and moral culture do not prevail, in which the Bible is not read at the opening of the school, the Lord's prayer repeated, and some hymn sung. This constitutes a part, and a very important part of moral and religious culture. Gentlemen need entertain no apprehensions of sectarian danger. This resolution embraces nothing of the kind. It expresses nothing of peculiar specific dogmatical theology. It was not intended to include that. It was intended as a simple recognition of the fact that our institutions rest and ought to rest upon Christianity as the basis. Whether you call it the Christianity of

moral and religious culture, or the Christianity of the Bible, is indifferent to me. The resolution as originally introduced, seems to me to be correct, and ought not lightly to be set aside. The principle seemed last evening to embody the sense of the Association; and I see no good reason for substituting one which has, it appears to me, no manner of connection with this Association. We might as well legislate upon any other truism, any other abstract proposition. I desire to see the original resolution adopted, or some good reasons shown why it should not be.

PROF. DAVIES explained that the original resolution was in the hands of the Association, so that he had merely offered his substitute as an amendment. If the Association refused to adopt it, the question would recur upon the original resolution offered last evening. He then proceeded to say:

Now, Mr. President, the question whether we shall have the substitute or the original resolution, involves just the question which has divided the good and the great from the beginning of the world to the present time. It is a question whether those who are acting together, or who wish to act together, who have the greatest interest and strongest desire to unite their minds upon one common cause, shall come upon a platform upon which they can all stand, or whether they shall spend their time in discussions where there will be a difference of opinion, and whether they shall split upon the ninth part of a hair, and separate into parties in regard to matters immaterial, and about which there is but a verbal difference. There is a great deal of true philosophy in the fact, that where two men, or two parties, or two sections, disagree but in the ninth part of a hair, there is no feeling of toleration, no sentiment of peace, but war to the knife is proclaimed on both sides. And why? Because neither party can see, when they are together all but the thickness of a leaf of tissue-paper, why they should not come exactly together, why the other party should not give up that little difference. When you, Mr. A., agree with me, Mr. B., so nearly, why can't you give up that little difference and agree with me exactly? So Mr. A., says, when you Mr. B., agree with me so nearly, do be a Christian now, and agree with me entirely.

I was once dining with Gen. Scott, when the question of "49° or 54° 40'" was under discussion, and he was explaining to many Senators, why we ought not to be so belligerent. Said a Senator, "why is it, Gen. Scott, that you, whose business it is to fight, are so anxious for peace?" "Ah," said he, "it is because I may have some little notion of what war is." Now, sir, this is precisely my own experience. I have had some little notion of what controversy is, so that in all Associations I will give up everything but principle, for the sake of unity. I am not willing to come here into this Association for the first time,—for I have not been able to come before,—and to introduce a principle, which, in the opinion of the founder of this very Association, will do great harm, a principle which has been discussed in all the meetings of the Association, which has been earnestly considered by the best minds and, ana-



lyzed and objected to by some of the purest hearts of the country, and to pass a vote upon a mere form of words, when in my judgment, the substitute will do equal good with the original resolution. I admit, sir, that a casuist of language, an acute logician, may analyze the original resolution, and analyze the substitute in such a way as to get the basis of an argument that shall reach to the dome of the building; but, sir, it will be an inverted pyramid, standing upon a point, and expanding by the fancies of argument. I therefore do earnestly ask this Association, as I had the misfortune to introduce the subject that has caused this difference of opinion, to waive, as far as they can, everything which shall prevent us from standing upon a common platform, when, in my opinion, the main object of Prof. Bache and Prof. Pierce, will be entirely carried out. A lady who took down the very words of Prof. Bache, has been kind enough to hand me the manuscript, and these were his words: "The meeting has been opened, as it should have been, by prayer; and I for one, would never desire to have the study of the Works of God separated from the study of the Word of God, and then we may always depend upon his blessing." The substitute carries out that general idea perfectly.

MR. RANDALL. There is nothing about public schools there.

PROF. DAVIES. The question of public schools was not raised; and why should we raise a mere point of casuistry about a name, about a word?

MR. GRIMSHAW, of Delaware, inquired what was meant in these resolutions by the word "religion." The substitute seemed to him rather to dodge the issue than to meet it directly. He wished the language to be so plain that no one would be in doubt as to its meaning. There seemed to be objections to the resolution on account of the term "public education;" and now, it was sought to amend it by substituting the expression, "the training of youth." But where are the youth trained in this country, the masses of the youth, but in the public schools? He hoped it was not the intention of the Association to legislate upon private schools or colleges. He regarded the substitute as merely adapted to induce the Association to vote for a proposition which all might not wish to endorse.

Other business being in order, the further consideration of the resolution was postponed to the

EVENING SESSION, when the Association resumed the consideration of Prof. DAVIES' resolution.

MR. RANDALL. I think it is important that we should understand the precise state of the question before us; which I believe to be this. At the opening of the Association, the retiring president gave expression, or was understood to give expression to the noble sentiment, that religious and moral instruction should form a prominent element in all our systems of public education. Whether Prof. Bache used the words ascribed to him is a matter of question, but I have no doubt that he meant to express that idea. At the meeting of the Association last

evening, Prof. Davies brought forward a resolution, in which the Association expressed its assent to the doctrine ascribed to Prof. Bache. That resolution received the warm and hearty concurrence of every gentleman who spoke on the subject as I understood. There was a concurrence of opinion, North and South, East and West, and the earnest desire was expressed that it should go forth to the world as approved by this Association. But for some reason or other, the mover of that resolution has to-day substituted another and as I conceive a totally different one.

The President, (HON. HENRY BARNARD,) explained to Mr. Randall, who had been absent during the remarks of Bishop Potter, the reason for changing the form of the resolution.

MR. RANDALL. Upon that subject I presume we shall have full light. The difference between the two resolutions seems to me to be this. The original resolution regards religious and moral instruction, important in all our systems of public education; while the present resolution is silent as to public education. It merely regards it as an important element in the training of the young. Upon that subject there is no difference of opinion. All of us are prepared to assent to the proposition contained in that substitute; but that is not a sentiment, as I conceive, which this Association is called upon to express. Whatever sentiment this Association may express, should have a specific application to our systems of public education, or, if you choose, public or private education. Herein, consists the difference. The one resolution announces a more formal abstract proposition, upon which we are not called upon, as I conceive, to express an opinion as an Association; the other expresses our sentiments upon a proposition with regard to which there has been considerable difference of opinion in the community, in relation to which we have felt a deep interest in all sections of the country. Gentlemen were gratified last night that at last this sentiment had found expression in an Association like this, composed of delegates from every section of our widely extended union.

It is, perhaps, the more important that we should settle this question, from the fact that at the last meeting of the New York State Teachers' Convention, at Utica; this very question came up for discussion, and it was then announced from high authority that the religious and the moral element ought not to enter into our systems of public instruction; that religious teaching and moral teaching, should be left to the family and to the church. If this doctrine is permitted to go forth to the world, it will at once be perceived that we cannot sustain, upon any reasonable, rational, independent ground, our systems of public instruction. If we strike out the religious and moral elements, what are our schools good for, except merely for intellectual teaching; and the idea is very prevalent throughout the country, that intellectual teaching alone, the cultivation of the head without the cultivation of the heart, is not the sort of teaching which should be given in our seminaries of learning.

I understand that one objection to this resolution, is the fact that simi-

lar resolutions have occasioned difficulties in Europe, especially in Great Britain, from the peculiar state of the institutions of those countries. But the propositions made across the water, were not to place the educational institutions upon the basis of Christianity, but upon particular denominational creeds. Sectarianism came in there under the great question of religious education.

I am unwilling to embarrass the deliberations or proceedings of this Convention in any respect. I feel as deep a desire as Prof. Davies himself that all our deliberations should as far as possible be unanimous. I think that if this question had been disposed of at an earlier period, it might have been done with great unanimity. But at all events, I desire that this Association should express its opinion upon this subject; for it is one of vital importance, involving a great principle, and of deep interest to us all. I desire that its opinion should go forth one way or the other. If we now abandon the resolution, and adopt a substitute which does not recognize the importance of the religious and moral element in our public instruction, the conclusion will be drawn that we desire to ignore it, or are opposed to it.

DR. McELLOGOTT moved to amend the amendment, by substituting the following resolution:

*Resolved*, That appropriate portions of the Holy Scriptures ought daily to be read in all schools and other institutions devoted to secular education, as a public recognition of the Divine Authority of the Bible, as a confirmation of the religious teachings which the pupils are always presumed elsewhere to receive, and as a means of diffusing directly from their source the wholesome influences of sound morality.

MR. RANDALL seconded the amendment.

DR. McELLOGOTT said that it was well known to all acquainted with the history of this institution from the beginning, that from the time of the Convention which resulted in the formation of the society, it had been his earnest wish to obtain, if possible, the moral effect of the public expression by the Association, of an opinion in favor of the practice commended in this amendment. He had made the endeavor at several different meetings; but at every time some adverse influence had prevented its success. The last time was at Newark. He was just then recovering from a severe fit of sickness, and, though hardly able to be present, he still sought to obtain a vote on this subject. But the debate was rudely cut off by the application of the Previous Question. So flagrant was the injustice committed at that time, that it excited some public interest outside of the Association. The opinion went extensively abroad that the majority of us were opposed to the practice of using the Bible, in any way, in our public schools. This impression gave birth to a letter, published in one of our religious newspapers, and understood to be from the pen of a distinguished clergyman of this city, which represented the Association in the same unfavorable light.

The opinion, thus imbibed and disseminated, derived a fresh confirmation from what happened at the next meeting; for then the matter came up in

the form of a lecture, wherein the ground was distinctly taken that it was improper to bring religious teaching, in any shape whatever, into the common schools. They, it was held, were for secular education, and for secular education alone. To introduce religious instruction into the public schools would, it was argued, be quite as inappropriate as to bring into the pulpit the subjects of Rhetoric, Chemistry, or the Law. He would say nothing just now about the soundness of this theory. He merely adverted to the lecture as further confirming the opinion that this Association was opposed to the introduction of the Bible into the schools.

When, therefore, Prof. Bache delivered his retiring address, it was most gratifying to hear him declare that at the bottom of all of our educational institutions there should be a deep religious and moral influence,—that the heaven of religion, indeed, should permeate the whole system, so that the educated man might go forth not only sharpened in intellect, but sound in heart. He had rejoiced, with others who heard the distinguished Professor, that, in him who might, perhaps, be supposed to be so absorbed in the intricacies of science, as to overlook the importance of religion, God had furnished a testimony so satisfactory,—that, like Newton, after exploring regions of thought unknown to common men, he still felt it to be the highest exercise of the soul to look up to heaven and adore with reverence the Infinite Mind. And when, last evening, Prof. Davies had introduced his resolution, and supported it in an eloquent speech, it was really delightful to witness the perfect unanimity with which it was received. Clergymen, teachers, all of every name and grade, followed one another in quick succession, every one warmly commending the sentiment which it embodied.

But suddenly the whole thing was stopped, as if by magic. A voice from heaven could hardly have arrested it more effectually. Those who had supported it with voices eloquent as angels', forthwith became silent as the inhabitants of the tomb. Why this change? What sudden discovery had been made? Had Prof. Bache been mistaken? Had those who had been so eloquent in defense of the resolution found themselves, all at once, in the wrong? Whatever the cause, all the good feeling and good speaking growing out of the occasion came directly to an end, and even the gentleman himself who offered the resolution, stepped forward and asked the Association to adopt, in its stead, another which he had prepared—a resolution affirming just nothing at all; being one of those beautiful substitutions in which nothing is made the substitute for something. He meant no disparagement by this remark. He spoke simply of the result, as it appeared to him. Doubtless there was a reason for the change, and, when developed, he might, perhaps, recognize the force of that reason. The only motive assigned by Prof. Davies, if he understood him aright, for asking leave of withdrawal, was his profound regard for the judgment of Bishop Potter, who doubted the expediency of such a resolution. He would take occasion to say that he had, perhaps, quite as much confidence in the Bishop as Prof. Davies had. He re-

spected his character, and loved him for his personal worth and for his services in the cause of public education. Yet this was a question in which merely personal considerations ought to have no weight whatever.

He regretted much that the Bishop, when he rose to intimate his doubts about the expediency of passing such a resolution as that of Prof. Davies, had not proceeded to state at large his objections; for he believed that they would have been found substantially the same with those sought to be obviated in this amendment. The resolution of Prof. Davies seems to contemplate formal teaching of religious truths. But no teacher could honestly undertake to teach religion, without giving to his teachings the bias of his own particular creed; and if he did so, every one of a different faith would forthwith become offended. All, therefore, that could be wisely done, in our public schools, was to read appropriate passages from the Holy Scriptures, at the opening in the morning, or at other suitable times, without undertaking to comment upon them. This is all that is commended in the amendment. This surely we may say, not as partisans, or promoters of a particular sect, but as citizens of a Christian land. This is due to the Bible; for the Bible is an unsectarian book. It is the most catholic of all books; catholic, because its divine Author is catholic,—catholic, because its revelations are intended for all mankind,—catholic, because all the thousand sects into which Christendom is unfortunately divided, still look up to it, and profess to make it their guide and standard.

But there are many, it may be said, who reject the Bible—altogether, as unworthy of belief, and that to them, the reading of it in the schools would be an infringement of their rights. In respect to persons of this class, it has been well said, that for a man to deny the credibility of the Bible, in these days, is to proclaim himself a fool, a knave, or an ignoramus. A fool he must be, if he can not comprehend the lucid reasoning by which its truth has been established; a knave he certainly is, if having fairly weighed and understood the evidence, he still professes to disbelieve what his reason must have forced him to accept; and surely he is an ignoramus, if he gives judgment against the book, without knowing what may be its claims to the confidence of mankind. But however this may be, the Divine authority of the Bible is certainly taken for granted in the very constitution of our government, and, therefore, no one's rights can be invaded by reading it in the schools. Every officer of the government, from the President down to the meanest official, is inducted into office under the solemnity of an oath on that volume. Christianity, the religion which it teaches, in one way or another, permeates all our institutions. Every thing in our political system indicates its recognition of the principle, that the Bible is the common standard of right and wrong in morals.

If, then, the Bible be truly unsectarian, if it be the source of all sound morals,—in a word, a revelation from God to man, shall it be presented as of Divine authority to the children in our schools? Shall they be kept five days in the week, the largest portion of their school time, under instruction, where that volume is never permitted to be opened? That is the

simple question. It has been asked,—What benefit can arise from our commending the practice of reading the Bible in the schools? Much in many ways. Among others, it would throw a protecting influence around many faithful teachers. It is well known that, in all parts of the country, there are some inveterate enemies, of religion. These men often manage to get into office, and so become connected with the schools. Now when a man who respects religion, happens to be the head of a school, where one or more of the school officers are of the opposite stamp, might not his hands be strengthened by the formal sanctions of a body like this? Shall he not be able to say, if necessary, that an Association of the most wise and learned men of the country have declared it to be their opinion that the Bible ought to be read in the schools? Would not official authorities be sometimes led to pause a moment, and consider, before acting in the face of such a sentiment from such a source? Were there no other benefit, this alone ought to insure the passage of this amendment.

But this subject is dividing the country at large, and the Association must take one side or the other. He should regard the ignoring of the Bible in the schools as more than counterbalancing all the good they could ever accomplish in other directions; and should, in that event, be willing to try whether another society might not be founded, that would not hesitate openly to lend its sanction to its use, at least in the way here advocated. He could not express his surprise at being compelled, in a body like this, to stand up in defense of such a position. Was he in the midst of professed infidels? Was he talking to men opposed or indifferent to all religion? Was he addressing a collection of petty politicians,—men moved only by the fear of losing their places? He had certainly thought he was speaking to a company of Christian men. And, in that full belief, he called upon them, in the name of their Master, to stand by the principle involved in this discussion.

He asked only that public recognition of the Bible, indicated in his amendment. He was satisfied to leave all direct and formal teaching of religion to the Church, to the Sunday-school, and to the fireside. But when his son entered the day-school, he wanted him there to find some formal regard to the authority of that sacred volume which he was taught, however feebly and imperfectly, to reverence at home.

He did not, therefore, agree with those who were in favor of introducing the Bible, as a text-book, into our public schools and making religious instruction a part of the ordinary exercises. The best work on morals, some one had said, was a moral man for the teacher; so the best work on religion for the use of schools, was a religious man for the teacher. Pupils were governed by what they saw rather than by what they heard. He would, therefore, of course recommend the greatest care in selecting teachers. They should be persons of high moral character. But he would not, on that account, refuse or omit the reading of the Bible, in the presence of the school, seeing that it is the only source of all sound morality, and that this public recognition of its Divine authority is a standing



confirmation of the teachings elsewhere received, or presumed to be received, by the pupils. This is all he had ever asked the Association to commend. And now, if it should appear that they meant deliberately to ignore all use of the Bible, in our common schools, there was but one course left him and those sympathizing with him to pursue.

MR. CLARK, of New Orleans, rejoiced to be able to breathe an atmosphere so pregnant with piety and morality. The sentiments which had proceeded from the lips of gentlemen, were all in one direction, that the foundation of all education which shall be truly valuable is the Bible. He had heard with delight, the remarks of Prof. Bache, and of Prof. Pierce. And when the original resolution was proposed by Prof. Davies, he had felt a thrill of delight that so large an Association of learned and respectable men engaged in the great work of education, were ready to give their sanction to religious education. Yet he had felt that there was a difficulty in the way of the passage of the resolution; for resolutions are valuable only so far as they are practicable. It was necessary, therefore, that the resolution should be one which could be carried into practical effect. It might be easy for gentlemen from Connecticut, Massachusetts, or New York, to carry the resolution into effect; but it must be borne in mind that the voice of this Association would not be heard alone in the New England and Middle States. He claimed for Louisiana, and neighboring States, some sympathy and some interest in the passage of such a resolution. He asked that it should be such as not to be detrimental to the interests of education even there. In the South and the West, the great question whether the Bible should be used in the schools, had been discussed, and had been decided differently from the decisions in the Eastern States. In the city of New Orleans, for instance, for a long time the Bible had been permitted to be used in the schools, and a form of prayer had been adopted which should not conflict with any sectarian views: and yet in consequence of the agitation of this subject, in consequence of the passage of such resolutions as this, in one quarter of the Union and another, it was found that they had upon their Board, men, who wished to drive the Bible from the schools; and now for several years the custom of reading the Bible and opening the school with prayer had been discontinued. And the same was true of the whole State of Louisiana, with the exception of one and the smallest district. Agitation he believed to have been the cause of this change. If the subject had been let alone; if the minds of the pupils had been operated upon by means of that Unconscious Tuition so eloquently treated of last evening, the Bible might still have been read, prayer might still have been used, and a powerful religious and moral influence might thus have been exerted.

It is impossible to carry the resolution into effect throughout the length and breadth of the land. There are respectable and religious portions of the community that will not yield to it. They will say that you shall not teach religion in the schools. They will say that the reading of King James' version of the Bible is not warranted by their system of religion, and



therefore you are attempting to engraft sectarian influences upon the school. And thus far they have succeeded in keeping the Bible out of the schools. It is not practical, therefore, to have the Bible used in all our schools. And if we undertake to carry into effect the resolution first offered, and introduce moral and religious instruction, how can that be done? As Bishop Potter remarked last evening, when you have taught the Ten Commandments, the Lord's Prayer, the Sermon on the Mount, and a few other passages of the Scripture, you have taught all that you can teach without entering upon disputed ground, upon the region of polemics. And if the teacher is capable and disposed to instruct in religious truths, what time can he find in the course of the day, further than by unconscious tuition?

Then there is another difficulty, that a large portion of the teachers have very little religion operating upon their minds. Where the religion is in the heart of the teacher, he can find abundant occasion for reference to the Scriptures without formally reading them. But where the teacher is either indifferent to religion or hostile to it, what better instrument could Satan desire than to have such a man compelled to teach religion? The difficulty is fundamental.

The doctrine had been urged upon this floor, that the government was bound to give every man in the community an education. This was a sentiment with which he could not agree; and led directly to the impracticable result in this resolution, if the government is undertaking to give a religious and moral education as well as an intellectual one. His view of the public system of education, was that it was intended to be merely supplemental; and it was only upon this view that we could avoid the conclusion that the government is bound not only to give an education to children in the public schools, but to require a certain religious and moral education, to be given to children in the private schools; for it cannot shake off the responsibility of providing that all children shall have such an education, if the principle is correct. But the principle upon which our government was founded was the spirit of religious toleration. And he would consider an education which does not recognize the Bible, as better than no education at all, because it opens the mind of the pupil, so that it becomes better able to receive religious instruction from elsewhere. He wished it to be thoroughly understood that he would be glad to have religious and moral instruction given in the public schools, but feared that either of the resolutions proposed, would create a hostility to it, and thus prevent rather than aid it. The better course would be, to see that the teachers are competent and disposed to give religious instruction, and then leave the matter to their discretion, under the peculiar circumstances of their several positions. He objected to the amendment of Dr. McElligott, particularly, because it specified the manner in which religious instruction should be given.

Mrs. STUART here sung a song; after which, a vote having been passed, limiting each speaker to ten minutes, the debate proceeded.

PROF. GREENLEAF said that this question had so affected him as to pre-

vent him enjoying his usual sleep last night. When Prof. Bache had sketched so beautifully and completely, an entire system of education for this country, he had felt that a mark had been made by this meeting; that such a system of American education was one of the wants of our country, and that we should have it because we need it, just as we had the telegraph because we needed it. And now, if a resolution could be passed in vindication of a moral and religious education, instruction in the divine truths of the Bible, another blow would be struck by this Convention, and not simply to vibrate in our own country, but spoken to-day, would go at once all over the world. He had lived twenty years in the city of New York, and felt that there was a need not only of all the religious instruction that could be given in the church and the family, but also of religious instruction in the schools.

REV. DR. McLEAN, of Pennsylvania, said that he could vote for all three of the resolutions with a good deal of pleasure, and he should like to have the vote taken upon the whole, and have them all adopted by the Association. He had none of that mawkish sensibility which refrained from expressing sentiments, for fear that the truth might not be congenial to others; and no proposition could be more indisputably true, than that religion must mingle with all our instruction to make it effective for good. Were the Association afraid to say that the Bible, which is the bulwark of our system, that for which we would peril life, liberty, everything, ought to be read in our schools? We had not refrained from arresting the self-evident principles of the Declaration of Independence, because there were a great many people who did not like them. And not a speaker had undertaken to dispute the truth of any one of the three resolutions; and should Christian men be afraid to assert principles upon which they were all agreed? It was only a question of time. Religion must be taught hereafter more than it ever has been. And they could do no less now than to plant their feet immutably upon the reading of the Bible in the Schools.

ERASTUS C. BENEDICT, of New York, thought that the resolution had not yet been put into such a form as to express the sentiment which a considerable portion of the members of the Association desired to express. In the original resolution, language was ascribed to Prof. Bache, which many thought he had not used.

PROF. DAVIES restated that before bringing forward the resolution, it had been shown to Prof. Bache, and received his sanction.

MR. BENEDICT said that that was satisfactory proof that he approved of the sentiment, but not that he used that form of expression in his retiring address. What he said was that he cordially approved of the opening of this Association with prayer, and that he disapproved of the separation of instruction upon the works of God and upon the Word of God. If therefore we are to undertake to quote the words of Prof. Bache, we have no right to put other words into his mouth, even although they may be such as to obtain his concurrence. And Dr. McElligott, in defending his amendment, gave ample reasons why the

original resolution should not pass. He considers it hardly a debatable proposition, it is so utterly impracticable. And thus with Dr. McElligott's resolution, as shown by the gentleman from New Orleans. That resolution only contemplates reading the Bible, it does not contemplate further religious instruction at all. But is the Association to go against religious instruction? Not at all. The debate had only shown that they were attempting to adopt resolutions, without having fully settled in their own minds what they wished to accomplish. And it was inexpedient to disturb the harmony of the Association, by the discussion of subjects which had created dissension, and excited feeling all over the country. He was in favor of adopting Prof. Davies' substitute, that moral and religious instruction are necessary in the training of youth. It had been said that it was useless to vote for that, because there was but one opinion in regard to it. He regarded it as a reason for voting for it, that their opinions upon it were so harmonious. Their very unanimity was strong evidence that the resolution was wise and discreet. But could it be said to be wise and discreet to attempt to adopt a resolution in regard to which they were divided in opinion? The Association having no corporate force, no power to issue an edict, harmony was requisite to give moral force to their action. And he felt free to say that if his own opinion was not clear upon the matter, he should regard the opinion of Bishop Potter, that the original resolution was inexpedient to be adopted, as coming from a source whose experience, and information, and integrity upon that subject, could be doubted by no one, and whose opinion was worthy to be adopted.

As to the Bible being an unsectarian book, he believed that if there was a thoroughly Protestant book anywhere, it was King James' translation of the Bible. It was in vain to say that the book is Catholic, and that all appeal to it; for the Catholics do not appeal to King James' version; and it was not the question whether the Hebrew and the Greek texts should be used in the schools. Catholics considered the Protestant version of the Bible as the great difficulty, and would not consent that it should be read.

**PRESIDENT TAPPAN.** The history of this discussion is very simple. President Bache delivered a short address in retiring from the presidential chair of this Association. That address so simple and unpretending, was filled with remarks of the highest importance relating to our educational interests. It was a very comprehensive and a very happy address. We all felt it; we all responded to it. At the close of that address he remarked that he would say nothing about religion and morality particularly; that it was not necessary for him to enter into any detail upon that subject, because everybody acknowledged the importance of morality and religion in a system of education, and regarded it as the foundation and best part of all education. He uttered it as a common sentiment, one to which the whole audience would respond. We were delighted to hear the annunciation from Dr. Bache, because unfortunately in our world, however inconsistent it may be, men of

science have sometimes been given to infidelity; and we rejoiced that a man so distinguished as he for scientific attainments, should come out, and with sincerity and Christian morality, should utter such sentiments. It was the feeling awakened by the exhibition of a Christian character upon the part of a man of science. I do not say that Prof. Bache honored religion by this. He honored himself. He did nothing more than his duty. Still, as it was an important fact, Prof. Davies was led to draw up a resolution which was intended to express that response that we all felt to the sentiment of Dr. Bache—nothing more. It was not intended to enter into the discussion whether the Bible should be or should not be read in our public schools. I believe there is nowhere any State law forbidding the Bible to be read, or forbidding the exercise of religious influence, the best of which may be that Unconscious Tuition so often spoken of to-day, or those observations on religion and duty, continually springing up so naturally that I can hardly conceive how it is possible for any good teacher to avoid making these practical applications as they occur in the course of his instructions.

As an example I will refer to a lecture I heard many years ago, from Dr. Torrey, upon chemistry. He had given a very striking exhibition of the great exactness by which Nature herself weighs the component parts of a compound substance. And, said he, here we have an illustration of that remarkable expression in Scripture, "He hath weighed the mountains in scales, and the hills in a balance." I remember the effect upon the audience, of that remark, showing that the universe is but the expression of the conceptions of the Divinity. We had an exhibition of the same thing at the Scientific Association at Providence, the other day. Prof. Pierce was discoursing upon the application of the calculus to observation, Dr. Bache had made upon the tides; and he said that God himself had ordained that man should study mathematics, that He had planned the universe in accordance with mathematical formulæ. When men come to study mathematics, they feel it to be but an instrument whereby to climb the Heavens of God, to penetrate the works of God; and these very formulæ are lights which God has given to mankind, to interpret His works. We all of us believe that there is a perfect correspondence between the Word of God and the works of God; and I suppose Prof. Bache meant nothing more than to express this spontaneous sentiment of his heart, for when he is pursuing science, he is not forgetful of the duties he owes to God as a Christian. I have drawn up a series of resolutions which I think embody the sense of the meeting; for really I conceive it to be merely a verbal difference which divides us. The resolutions are these:

*Resolved*, That the sentiment expressed in the remarks of Prof. Bache on retiring from the Presidential Chair of this Association—that religion and morality constitute the foundation and best part of education—is worthy alike of the Christian and the man of science.

*Resolved*, That this Association, in endorsing this sentiment, mean to indicate thereby their full belief that the most perfect harmony exists

between the Word and the works of God; that the scientific and erudite theologian who expounds the first, and the devout and reverent philosopher who investigates the history and laws of the second, cannot essentially differ, but must move toward the same end, and together work for the good of man and the glory of God.

DR. McELLIOTT suggested that it would not be in order to offer those resolutions at this time; there being already pending an amendment in the second degree, and

PROF. TAPPAN stated that he would move their adoption whenever it should be in order.

BISHOP POTTER. I think it very unfortunate that a Convention of this kind, a conference for the free interchange of opinion, should allow itself to be drawn into divisions. I really do not see any great good to be accomplished by the passage of any resolution whatever, if it can be passed only by a majority. That was one reason why I deprecated last evening undertaking to pass such a resolution in this place. The subject of the religious instruction to be given in our schools, cannot be considered a settled question. Certainly with regard to the public schools, established by authority of law, and to a certain extent under the supervision of officers constituted by law, it cannot be considered—we are referring to the *quo modo*,—as a settled question. It is hardly a settled question in any country in the world, except under absolute despotisms; and even there the authority of that despotism is exercised with exclusive reference to the particular form of belief to be tolerated and inculcated. In a country whose religious principles are based upon the largest possible toleration consistent with the existence of civilized society, you must carry the toleration into the schools as well as everywhere else; and if you cannot get the parents of the children to agree that they shall themselves receive instruction from the same religious teacher, upon the Lord's day, is it to be expected that you can get them to concede that their children shall receive one common kind of religious instruction from their school teachers on the other six days in the week?

The fact is that in this country the subject is surrounded by the greatest practical difficulties. Yet I think these difficulties are destined to be overcome; and we are in the way of overcoming them. The great power through which we are gradually overcoming them, is the power of patience, of patient waiting. I think there is a great deal more religious instruction given in the public schools now, than twenty years ago. And bad, Sir, as your New York system was thirty years ago, it was a great deal better than no system at all. If the question was distinctly at issue, whether we should have schools with no Bible, no religious instruction in them, or no public schools at all; I would say that I would surrender the Bible. There are other places where the Bible can be taught. Give me a place where the children shall be taught to be able to read the Bible, and I will take care that they shall read the Bible out of school, if they do not in school. Now, I believe in my heart, that it will be perfectly safe for the interest of every class

in the state of New York, and in the United States, to have the Bible read. I do not agree with Mr. Benedict, that King James' Bible can not be read in the schools. I do not believe that any Christian community in the world could be damaged by it. On the contrary if I had administration in that church supposed to be most sensitive, I would say, let the children read it under proper guards. I believe that the hold of that church upon public confidence would be increased by such a course, if she should take it to-morrow. But we can not expect that she will take it just now; although I should not be surprised if she should take it. I think we are moving forward towards the conviction that the Bible is a safe and salutary book to be read in our public schools. But I doubt whether such a result will be accelerated by passing such resolutions as this in this place, especially if they are to be passed after some warm debate, and by a small majority.

Where is the question, whether the Bible should be used in the schools, ultimately to be decided? It can not be decided by a body of this kind; for that would be a decision almost exclusively by outsiders. And for such a body to undertake to prescribe and dictate, unavoidably engenders the spirit of resistance. Let a man undertake to dictate to you, with regard to your private affairs, even the very course you had previously resolved to follow, and you are at once tempted to change it, for you wish to assert your right to regulate your own concerns. And where is that question, whether the Bible is to be read in the schools, ultimately to be decided? In 12,000 different localities in the State of New York. In more than half of them it has been settled already. The Bible is now read, I will venture to say, in more than half probably three-fourths of them; and were this Association of grave sages, devoted to the subject of education and the great interests of humanity, to resolve that the Bible ought to be read in these schools, they would tell you that you are quite behind the time of day. We do not need such a resolution as that. It will be regarded as simple surplusage. And when you come to the other districts which are discussing the subject among themselves, each one of those districts has its own peculiar difficulties, which can only be thoroughly known to themselves, which are to be dealt with by those immediately interested. And I think the ultimate settlement of these difficulties can only be retarded by the intrusion of any foreign power whatever. I believe there is a growing spirit of piety throughout this land, more and more inclining all these independent communities to the adoption of this policy. Leave it to that. Leave it to the great discussions which are going on all over the land. Leave it to the power of the pulpit and the press. Leave it to the almost unanimous expression of a wish, which has been heard within these walls. But do not step in and undertake to prescribe where you have no authority, and where your presence may be considered as an intrusion, if not resented as a disturbance.

The fact, is, that there are conceivable cases in which the introduction of the Bible might be deprecated; and therefore the proposition con-



tained in Dr. McElligott's substitute, is one to which in the abstract I should not find myself able to consent. It is the proposition that in all schools the Bible should be daily read. I have no doubt that it ought to be read in all schools where it can be read without the sacrifice of an interest greater than that which you can gain from it. Suppose that the only teachers you have to fill the place, is one who demonstrates by his daily life that he is godless, without the fear of God before his eyes, who can not help, by the process of unconscious tuition, proclaiming the fact in his school that he does not fear God, that he does not in his heart regard the Bible. Nor will that man perform the duty you would impose upon him by law, in such a way as to promote reverence for the Scriptures, in such a way as to deepen in the hearts of those little ones the fear of God and the love of Christ? I say no. The whole process will be regarded by them, not as a solemn mockery, but as a farce. A worse impression upon the religious character and associations could not well be produced.

There is another conceivable case, owing to the prevalence of certain religious or anti-religious views. Because it is a singular fact that the public schools are opposed by those who contend that they have not religion enough in them, by those who contend that they have too much, and by those who contend that they have none at all. These three grounds are distinctly taken by the enemies of the public school system. And I can easily comprehend that affairs might take such a course that in ten years we should find the Protestants, the Catholics, and the unbelievers, all standing side by side, shoulder to shoulder, toppling that magnificent system to its base; and if that time shall ever come I verily believe it will have been invoked by the excessive zeal and impatience of those wishing to introduce religious instruction in these schools.

[The ten minutes having expired, the rule was suspended to allow Bishop Potter to continue his remarks.]

I will not abuse the privilege the Convention has extended me. I will simply make one remark with regard to the past history of this Association. There is nothing in its past history which has afforded me greater gratification, if I may except the great and noble gathering of educated men which has taken place here to an extent I never beheld before, than its course with regard to the adoption of resolutions. From the beginning, the policy has been to come together, and hold friendly conferences, the effect of which has been to make each separate one a sharer in the resources of all, and yet with no humiliation or want of self-respect. Hitherto, antagonism has been avoided; and especially have we avoided that greatest mistake of deliberative bodies, attempting to construct platforms with regard to debated and debatable questions. Politicians are constantly engaged in that business, and it does strike me as being one of the most ridiculous employments they could engage in; patching up always for the nonce, and very rarely involving a full and frank consideration of great principles. All such policies I should be

very glad to have the Association ignore, as it has hitherto done. We come together not for the purpose of being driven further assunder, but for the purpose of being drawn together and assimilated by the free interchange of paternal thought. I think that whenever the Association departs from that policy, and undertakes to pass resolutions by mere majorities, upon matters with regard to which the wisest minds still pause and hesitate, we shall lose our whole power of moral influence, and our dignity will have gone. It has been upon this principle, I believe, that hitherto, whenever this question has been brought up, as at Newark, and at Pittsburg, the subject has first been freely and frankly talked about and then, the resolution itself passed by, laying it upon the table, or disposing of it in some other way, without intending any possible disrespect to the Bible, but simply on account of our firm conviction that it is not the province of this Association to enter into a question of that kind.

MR. W. H. WELLS, of Massachusetts, said, that he believed no one had yet spoken from his state; and if any part of the Union might be sensitive with regard to the exclusion of the Bible from the schools, it would be Massachusetts. Yet, he did not believe that Massachusetts would desire the Convention to pass a resolution here, requiring the reading of the Bible, when there might be questions in various quarters as to the expediency of such a resolution. For one, he would be perfectly satisfied with the moral effect of the discussion which had taken place, if it should be reported. That would accomplish all that could be accomplished by passing resolutions, and he believed it would be satisfactory to every section of the country. He believed that all were agreed, that moral and religious instruction ought to be given in our public schools. He should prefer to leave the whole matter to the teacher.

PROF. AGNEW, said, that having given away to Bishop Potter last night, and afterwards been prevented from making any remark, by the previous question being called, he thought it due to himself to explain his position. His views had been so clearly expressed by Bishop Potter, that he should almost be satisfied to adopt that as sufficient explanation. He wished it to be understood that he was not opposed to using the Bible in the schools. He used it constantly in his own instructions, and should be glad if all could do the same. But he did not consider the question as settled. There might now be a quiet calm; but soon the storm and the earthquake might be upon us from this very question. He could not therefore consider it wise to enter into the question, and to attempt to pass either of the resolutions; for they could not agree upon any of them. He would therefore move that the further consideration of the whole subject be indefinitely postponed.

The motion was rejected;—

On motion by Mr Scott, the resolution, (with the amendments,) was laid upon the table.





Western Seminary East Hampton, Mass.







## XI. WILLISTON SEMINARY.

EAST HAMPTON, MASS.

WILLISTON SEMINARY, located in the village of East Hampton, Mass., owes its existence to the munificence of SAMUEL WILLISTON, who has at various times since 1841, given the sum of fifty-five thousand dollars\* (\$55,000) toward "the establishment and endowment of an Institution for the intellectual, moral, and religious education of youth." The founder has set forth in a written and published instrument, his wishes for the guidance of those who are, or may be entrusted with the management of its concerns. From this remarkable document, entitled "Constitution of Williston Seminary, at *East Hampton, Mass.*," we make such extracts as set forth clearly the motives† which actuated the founder, the objects he had in view, and the way in which he hopes to have his objects accomplished. It will be borne in mind by the reader, that these extracts do not contain all that the founder has written under the several heads, but only a portion of the provisions and suggestions which we think may prove serviceable to others who may feel a disposition "to go and do likewise."

Believing, that the image and glory of an all-wise and holy God are most brightly reflected in the knowledge and holiness of his rational creatures, and that the best interests of our country, the church and the world are all involved in the intelligence, virtue, and piety of the rising generation; desiring also, if possible, to bring into existence some permanent agency, that shall live, when I am dead, and extend my usefulness to remote ages, I have thought I could in no other way more effectually serve God or my fellow-men, than by devoting a portion of the property which he has given me, to the establishment and ample endowment of an Institution, for the intellectual, moral and religious education of youth.

Adapting the Institution to the existing wants of the community, and the times in which my lot is cast, I have designed it to be neither a common Academy or an ordinary College, but a Seminary of intermediate grade, which shall combine all the advantages of a Classical Academy of the highest order with such other provisions as shall entitle it to the name of an English College, and which shall be sacredly consecrated with all its pecuniary and moral resources to the common cause of sound learning and of pure and undefiled religion.

It is my wish, that the young men, who repair to it for the purpose of fitting themselves for College, may be *thoroughly drilled* in all the preparatory studies, particularly in the *elements of accurate scholarship* in the *Latin and Greek*

\* Besides the liberal endowment of the Seminary which bears his name, Mr. Williston is the largest pecuniary benefactor of Amherst College, having given to that Institution the sum of fifty thousand dollars.

† It would be interesting and instructive—and we think impulsive to others, to lift the veil from the first inception, and gradual development of such an institution as this, in the mind of the founder, until we find it a glorious reality in beautiful grounds, substantial buildings, and a well selected library and apparatus, faithful trustees, competent teachers, and diligent and improving pupils.

*Languages*, and at the same time *faithfully disciplined* in all those *habits*, not only of study, but of thought, feeling and action, which are so easily formed at this early stage of their education, and yet so likely to follow them in all the intricate windings of their pathway through life, and even down the trackless ages of eternity.

It is believed, that three years may advantageously, and should usually, be spent in studies preparatory to College, and it shall be the effort of the Trustees and Teachers to encourage by all suitable means the completion of a regular course of three years. To this end, certificates of graduation shall be given by the Principal to those students, and those only, who shall have completed the entire course to his satisfaction and at the same time have maintained an unblemished moral character.

It is expected moreover, that the standard of attainment in this Department will be elevated from time to time, as the standard of Classical Education rises in our best Colleges, and in the literary community. It is also my particular desire, that the Teachers examine the pupils of the Classical Department as to their attainments in the branches of a common English education, and, if they be found deficient, supply the deficiency. Bad orthography, bad penmanship or bad grammar—bad habits in any of the rudiments—if they be not corrected in the preparatory school, will probably be carried through College and not unlikely extend themselves to other studies and pursuits; whereas the habit of doing every thing well, so far as he goes, will likewise follow the student as long as he lives, and give completeness to whatever he does, and therefore cannot be too earnestly inculcated by the Teachers, or too carefully cultivated by the students.

My object in connecting an English Department with the Classical has been, partly, to supply the deficiencies in the English education of the Classical students, but chiefly, that those, who intend to pursue the various occupations of business, and have not the time, or the means, or the inclination to go through a regular Collegiate course, may obtain a better discipline and a wider acquaintance with the various branches of science and English Literature, than are now placed within their reach. The design therefore embraces ample instruction in English Grammar, Geography and Arithmetic, together with Reading, Writing, Orthography and Orthoepy; in Rhetoric, Logic and Intellectual and Moral Philosophy, and in the several branches of Mathematics and Natural Science.

Nor can I omit to mention here Sacred Music, particularly Vocal Music, as a branch, which I would have always taught by a well qualified Teacher, and would have every pupil urged to cultivate, as an important means at once to improve the voice, to refine the feelings, to assuage the passions and to soften the heart.

Believing that the education of the two sexes together, *so far as their appropriate studies coincide*, is in accordance with the constitution and design of nature, and, *under proper regulations*, not only safe from serious evils, but connected with positive advantages, I have made provision in the arrangement of the public rooms, and in the employment of a Female Teacher, for the admission of Females to all the privileges of the Seminary, which may be becoming or desirable for their sex. And it is my wish, that this arrangement should be continued under the watchful guardianship and care of the Trustees; unless after longer trial, or under a change of circumstances, it should prove manifestly detrimental to the main design of the Seminary, as above described.

#### TRUSTEES.

The board of Trustees shall consist of Clergymen and Laymen, in nearly equal proportion, of whom the Principal shall always be one, *ex officio*. The majority of the board shall never be residents of East Hampton, neither should persons be appointed Trustees, who reside at such a distance from East Hampton, as to preclude their punctual and regular attendance on the meetings of the Board. Whenever a vacancy shall occur in the Board, it shall be filled from a list of names propounded at a meeting held at least two weeks previous. Such elections and all others shall be by ballot. The Trustees shall hold an annual meeting at East Hampton, at the close of the Academic year, to examine into the condition of the Seminary, to look after the safety of the funds; to observe the manner in which the officers of trust and instruction perform their duties, and to transact such other business as may come before them.

A Committee of two of their own number shall be appointed at each annual meeting, whose duty it shall be to attend the Examination and other public exercises at the close of the ensuing Academic year.

The Trustees shall appoint the Principal and the permanent Teachers, at some regularly convened meeting. The less permanent Teachers may be appointed by some Committee invested with that power by the Trustees, subject, however, to the sanction of the Board at their next meeting. It is earnestly enjoined upon the Trustees to be prompt and decided, not only in filling such vacancies as may occur in the Providence of God, in the Board of Teachers, but in removing any Teacher who may prove incompetent or unfaithful, or unwilling to work, or whose continuance for other reasons, may materially impair the usefulness of the Seminary. It is designed that the Teachers shall be working men, zealous, laborious, and untiring in the duties of their office.

#### TEACHERS.

No person shall be appointed Principal or permanent Teacher, who is not a professor of the Christian Religion, and a man of reputed piety, of exemplary manners, of good natural abilities and literary acquirements, well acquainted with human nature, and apt both to govern and to teach. As far as practicable, the same qualifications shall be required in the inferior Teachers.

The Teachers shall hold frequent and regular meetings, for consultation in regard to the general welfare of the Seminary, and the proficiency of the pupils, and shall labor assiduously, not only that the Seminary accomplish the object of the Founder, but that each pupil answer the reasonable expectations of his parents and friends.

It shall be the duty of the Principal to exercise a general supervision over all the Classes and Departments; and he shall present a written report of the condition of the Seminary in its several Departments to the Trustees, at each annual meeting. In consideration of the peculiar and responsible duties thus imposed upon him, it is deemed proper and even desirable, that the Principal should not be employed during the entire period of school hours, in the work of immediate, daily instruction.

It is extremely desirable, that the Teachers should remember, that the great objects of the foundation, on which so much time and money and anxious thought have been expended, can never be realized without their zealous and energetic coöperation; that upon them rests the particular and immediate responsibility of sustaining and elevating the standard of literary and scientific attainment in the Seminary, and what is far more important in the view of the Founder, of maintaining and improving its moral and religious character and influence; and therefore it is expected of them, not only to impart able and faithful instruction in their respective departments of learning, but to guard the health and happiness and morals of their pupils, to cherish in them habits of order and neatness in their rooms and their persons, propriety in their deportment towards each other and their Teachers, refinement of manners in the ordinary intercourse of life, temperance in food and drink, economy in the use of money, and industry in the employment of all their time, as well as faithful application to their academic studies; to impress them with a lively sense of the great duties which they owe to themselves, their parents, their neighbors, their country, and their fellow men; and above all to inculcate that fear of the Lord which is the beginning of wisdom, and that departure from evil which is the truest understanding; ever considering that goodness without knowledge is powerless to do good, and knowledge without goodness is power only to do evil; while both combined form the character that most resembles God, and is best fitted to bless mankind.

#### BUILDINGS AND GROUNDS.

The Buildings and Property of Williston Seminary shall always be kept insured at good and responsible offices for an amount, as near the value of the same, as such offices are willing to insure for; and it shall be the duty of the Treasurer to execute this important regulation.

Believing, that more or less of manual labor, especially in the cultivation of the earth, is conducive to bodily health, and to the mental vigor and moral improvement of students, I would fain hope, that the garden on the grounds will always be cultivated and adorned by the young men, who are members of the Seminary,

and it is desired that the Trustees and Teachers should hold out suitable encouragement and inducements to the same.

#### BOARDING HOUSE.

It is my desire that the Boarding House be kept open and furnished, as it now is, for a Commons or Club, where such students as choose, may associate and board themselves at their own expense, and in their own way; provided, always, that due order be preserved and strict economy and temperance be practiced. Students may also board with private families in the neighborhood; provided, however, that the Trustees may require all to board in some other way, and no student shall be allowed to board in any place which the Trustees shall not approve.

#### FUNDS OF THE SEMINARY.

To prevent the funds of Williston Seminary from being wasted, I direct that they be loaned, if practicable, on unencumbered real estate, within this Commonwealth, worth, without the buildings, at least twice as much as the sum loaned.

#### MORAL AND RELIGIOUS CHARACTER.

To preclude all misunderstanding of the design of Williston Seminary, I declare again, in conclusion, that the primary and principal object of the Institution, is the glory of God in the extension of the Christian Religion, and in the promotion of true virtue and piety among men; that the discipline of the mind in all its noble faculties is, and should be deemed next in importance; and that in subservience to these paramount ends, the several branches of useful knowledge, above mentioned, should be assiduously cultivated. Accordingly, I hereby ordain and require, that the School Exercises of each day shall be opened and closed with the reading of the Scriptures and prayer; that at some convenient and suitable hour of each week, an Exercise in the Bible, either a Lecture or Recitation, as may be thought best, shall be held for the benefit of the whole school; that by precept and example, the Teachers shall encourage the pupils in holding occasional meetings for social, religious worship; and that at other times and in other ways, they shall take frequent opportunities to impart moral and religious instruction to the members of the Seminary. And that all these efforts may not be thwarted by the influence of bad members, it is proper and indispensable that great pains be taken, both by Trustees and Teachers, for the prompt removal, by private dismissal or public expulsion, as the case may require, of any incorrigibly indolent, disorderly, profane, or otherwise vicious youth from all connection with the Seminary.

The Institution thus constituted by its founder, was organized, mainly, by Rev. Luther Wright, its first Principal, who was consulted by Mr. Williston, from the first inception of the plan. Prof. Wright graduated at Yale College, in 1822—was Tutor there for several years. In 1830, he took charge of Leceister Academy, Mass., which he raised from a depressed condition to one of the most flourishing academies of New England. Mr. Wright built up the reputation of Williston Seminary from the start, on the solid foundation of requiring from his pupils hard study and strict discipline; and when he retired from the school, from impaired health, in 1846, he left this new Seminary second to none other in New England, for the thoroughness of its teaching.

According to the Fourteenth Annual Catalogue, (1854-55,) there were 180 pupils in the classical department, of whom 33 were females, and 163 in the English department, of whom 55 were females.

The present Principal is JOSIAH CLARK, M. A.

#### **XIV. SUBJECTS AND METHODS OF INSTRUCTION IN MATHEMATICS;**

AS PRESCRIBED FOR ADMISSION TO THE POLYTECHNIC SCHOOL OF PARIS.

BY W. M. GILLESPIE,

Professor of Civil Engineering in Union College.

---

[Concluded from the May number.]

#### **III. ALGEBRA.**

ALGEBRA is not, as are Arithmetic and Geometry, indispensable to every one. It should be very sparingly introduced into the general education of youth, and we would there willingly dispense with it entirely, excepting logarithms, if this would benefit the study of arithmetic and geometry. The programme of it which we are now to give, considers it purely in view of its utility to engineers, and we will carefully eliminate every thing not necessary for them.

Algebraical calculation presents no serious difficulty, when its students become well impressed with this idea, that every letter represents a number; and particularly when the consideration of negative quantities is not brought in at the outset and in an absolute manner. These quantities and their properties should not be introduced except as the solution of questions by means of equations causes their necessity to be felt, either for generalizing the rules of calculation, or for extending the meaning of the formulas to which it leads. CLAIRAUT pursues this course. He says, "I treat of the multiplication of negative quantities, that dangerous shoal for both scholars and teachers, only after having shown its necessity to the learner, by giving him a problem in which he has to consider negative quantities independently of any positive quantities from which they are subtracted. When I have arrived at that point in the problem where I have to multiply or divide negative quantities by one another, I take the course which was undoubtedly taken by the first analysts who have had those operations to perform and who have wished to follow a perfectly sure route: I seek for a solution of the problem which does not involve these operations; I thus arrive at the result by reasonings which admit of no doubt, and I thus see what those products or quotients of negative quantities, which had given me the first solution, must be." BEZOUT proceeds in the same way.

We recommend to teachers to follow these examples; not to speak to their pupils about negative quantities till the necessity of it is felt, and  
No. 5.—[Vol. II, No. 1.]—19.

when they have become familiar with algebraic calculation; and above all not to lose precious time in obscure discussions and demonstrations, which the best theory will never teach students so well as numerous applications.

It has been customary to take up again, in algebra, the calculus of fractions, so as to generalize the explanations given in arithmetic, since the terms of literal fractions may be any quantities whatsoever. Rigorously, this may be well, but to save time we omit this, thinking it better to employ this time in advancing and exercising the mind on new truths, rather than in returning continually to rules already given, in order to imprint a new degree of rigor on their demonstration, or to give them an extension of which no one doubts.

The study of numerical equations of the first degree, with one or several unknown quantities, must be made with great care. We have required the solution of these equations to be made by the method of *substitution*. We have done this, not only because this method really comprehends the others, particularly that of *comparison*, but for this farther reason. In treatises on algebra, those equations alone are considered whose numerical coefficients and solutions are very simple numbers. It then makes very little difference what method is used, or in what order the unknown quantities are eliminated. But it is a very different thing in practice, where the coefficients are complicated numbers, given with decimal parts, and where the numerical values of these coefficients may be very different in the same equation, some being very great and some very small. In such cases the method of *substitution* can alone be employed to advantage, and that with the precaution of taking the value of the unknown quantity to be eliminated from that equation in which it has relatively the greatest coefficient. Now the method of *comparison* is only the method of substitution put in a form in which these precautions cannot be observed, so that in practice it will give bad results with much labor.

The candidates must present to the examiners the complete calculations of the resolution of four equations with four unknown quantities, made with all the precision permitted by the logarithmic tables of Callet, and the proof that that precision has been obtained. The coefficients must contain decimals and be very different from one another, and the elimination must be effected with the above precautions.

The teaching of the present day disregards too much the applicability of the methods given, provided only that they be elegant in their form; so that they have to be abandoned and changed when the pupils enter on practice. This disdain of practical utility was not felt by our great mathematicians, who incessantly turned their attention towards applica-



tions. Thus the illustrious Lagrange made suggestions like those just given; and Laplace recommended the drawing of curves for solving directly all kinds of numerical equations.

As to literal equations of the first degree, we call for formulas sufficient for the resolution of equations of two or three unknown quantities. Bezout's method of elimination must be given as a first application of that fruitful method of indeterminates. The general discussion of formulas will be confined to the case of two unknown quantities. The discussion of three equations with three unknown quantities,  $x$ ,  $y$ , and  $z$ , in which the terms independent of the unknown quantities are null, will be made directly, by this simple consideration that the system then really includes only two unknown quantities, to wit, the ratios of  $x$  and  $y$ , for example, to  $z$ .

The resolution of inequalities of the first degree with one or more unknown quantities, was added to equations of the first degree some years ago. We do not retain that addition.

The equations of the second degree, like the first, must be very carefully given. In dwelling on the case where the coefficient of  $x^2$  converges towards zero, it will be remarked that, when the coefficient is very small, the ordinary formula would give one of the roots by the difference of two numbers almost equal; so that sufficient exactness could not be obtained without much labor. It must be shown how that inconvenience may be avoided.

It is common to meet with expressions of which the maximum or the minimum can be determined by the consideration of an equation of the second degree. We retain the study of them, especially for the benefit of those who will not have the opportunity of advancing to the general theory of maxima and minima.

The theory of the algebraic calculation of imaginary quantities, given *a priori*, may, on the contrary, be set aside without inconvenience. It is enough that the pupils know that the different powers of  $\sqrt{-1}$  continually reproduce in turn one of these four values,  $\pm 1$ ,  $\pm \sqrt{-1}$ . We will say as much of the calculation of the algebraic values of radicals, which is of no use. The calculation of their *arithmetical* values will alone be demanded. In this connection will be taught the notation of fractional exponents and that of negative exponents.

The theory of numbers has taken by degrees a disproportionate development in the examinations for admission; it is of no use in practice, and, besides, constitutes in the pure mathematics a science apart.

The theory of continued fractions at first seems more useful. It is employed in the resolution of algebraic equations, and in that of the ex-



ponential equation  $a^x=b$ . But these methods are entirely unsuited to practice, and we therefore omit this theory.

The theory of series, on the contrary, claims some farther developments. Series are continually met with in practice; they give the best solutions of many questions, and it is indispensable to know in what circumstances they can be safely employed.

We have so often insisted on the necessity of teaching students to calculate, as to justify the extent of the part of the programme relating to logarithms. We have suppressed the inapplicable method of determining logarithms by continued fractions, and have substituted the employment of the series which gives the logarithm of  $n+1$ , knowing that of  $n$ . To exercise the students in the calculation of the series, they should be made to determine the logarithms of the numbers from 1 to 10, from 101 to 110, and from 10,000 to 10,010, the object of these last being to show them with what rapidity the calculation proceeds when the numbers are large; the first term of the series is then sufficient, the variations of the logarithms being sensibly proportional to the variations of the numbers, within the limits of the necessary exactness. In the logarithmic calculations, the pupils will be exercised in judging of the exactness which they may have been able to obtain: the consideration of the numerical values of the proportional parts given in the tables is quite sufficient for this purpose, and is beside the only one which can be employed in practice.

The use of the sliding rule, which is merely an application of logarithms, gives a rapid and portable means of executing approximately a great number of calculations which do not require great exactness. We desire that the use of this little instrument should be made familiar to the candidates. This is asked for by all the professors of the "School of application," particularly those of Topography, of Artillery, of Construction, and of Applied Mechanics, who have been convinced by experience of the utility of this instrument, which has the greatest possible analogy with tables of logarithms.

Before entering on the subjects of higher algebra, it should be remembered that the reductions of the course which we have found to be so urgent, will be made chiefly on it. The general theory of equations has taken in the examinations an abnormal and improper development, not worth the time which it costs the students. We may add, that it is very rare to meet a numerical equation of a high degree requiring to be resolved, and that those who have to do this, take care not to seek its roots by the methods which they have been taught. These methods moreover are not applicable to transcendental equations, which are much more frequently found in practice.

The theory of the greatest common algebraic divisor, in its entire generality, is of no use, even in pure science, unless in the elimination between equations of any degree whatever. But this last subject being omitted, the greatest common divisor is likewise dispensed with.

It is usual in the general theory of algebraic equations to consider the derived polynomials of entire functions of  $x$ . These polynomials are in fact useful in several circumstances, and particularly in the theory of equal roots; and in analytical geometry, they serve for the discussion of curves and the determination of their tangents. But since transcendental curves are very often encountered in practice, we give in our programme the calculation of the derivatives of algebraic and fractional functions, and transcendental functions, logarithmic, exponential, and circular. This has been long called for, not only because it must be of great assistance in the teaching of analytical geometry, but also because it will facilitate the elementary study of the infinitesimal calculus.

We have not retrenched any of the general ideas on the composition of an entire polynomial by means of factors corresponding to its roots. We retain several theorems rather because they contain the germs of useful ideas than because of their practical utility, and therefore wish the examiners to restrict themselves scrupulously to the programme.

The essential point in practice is to be able to determine conveniently an incommensurable root of an algebraic or transcendental equation, when encountered. Let us consider first an algebraic equation.

All the methods which have for their object to separate the roots, or to approximate to them, begin with the substitution of the series of consecutive whole numbers, in the first member of the equation. The direct substitution becomes exceedingly complicated, when the numbers substituted become large. It may be much shortened, however, by deducing the results from one another by means of their differences, and guarding against any possibility of error, by verifying some of those results, those corresponding to the numbers easiest to substitute, such as  $\pm 10$ ,  $\pm 20$ . The teacher should not fail to explain this to his pupils.

Still farther: let us suppose that we have to resolve an equation of the third degree, and that we have recognized by the preceding calculations the necessity of substituting, between the numbers 2 and 3, numbers differing by a tenth, either for the purpose of continuing to effect the separation of the roots, or to approximate nearer to a root comprised between 2 and 3. If we knew, for the result corresponding to the substitution of 2, the first, second, and third differences of the results of the new substitutions, we could thence deduce those results themselves with as much simplicity, as in the case of the whole numbers. The new third difference, for example, will be simply the thousandth part of the old

third difference. We may also remark that there is no possibility of error, since, the numbers being deduced from one another, when we in this way arrive at the result of the substitution of 3, which has already been calculated, the whole work will thus be verified.

Let us suppose again that we have thus recognized that the equation has a root comprised between 2.3 and 2.4; we will approximate still nearer by substituting intermediate numbers, differing by 0.01, and employing the course just prescribed. As soon as the third differences can be neglected, the calculation will be finished at once, by the consideration of an equation of the second degree; or, if it is preferred to continue the approximations till the second differences in their turn may be neglected, the calculation will then be finished by a simple proportion.

When, in a transcendental equation  $f(X)=0$ , we have substituted in  $f(X)$  equidistant numbers, sufficiently near to each other to allow the differences of the results to be neglected, commencing with a certain order, the 4th, for example, we may, within certain limits of  $x$ , replace the transcendental function by an algebraic and entire function of  $x$ , and thus reduce the search for the roots of  $f(X)=0$  to the preceding theory.

Whether the proposed equation be algebraic or transcendental, we can thus, when we have obtained one root of it with a suitable degree of exactness, continue the approximation by the method of Newton.

#### PROGRAMME OF ALGEBRA.

##### *Algebraic calculation.*

Addition and subtraction of polynomials.—Reduction of similar terms.  
 Multiplication of monomials.—Use of exponents.—Multiplication of polynomials.  
 Rule of the signs.—To arrange a polynomial.—Homogeneous polynomials.  
 Division of monomials. Exponent zero.—Division of polynomials. How to know if the operation will not terminate.—Division of polynomials when the dividend contains a letter which is not found in the divisor.

##### *Equations of the first degree.*

Resolution of numerical equations of the first degree with one or several unknown quantities by the method of substitution.—Verification of the values of the unknown quantities and of the degree of their exactness.

Of cases of impossibility or of indetermination.

Interpretation of negative values.—Use and calculation of negative quantities.

Investigation of general formulas for obtaining the values of the unknown quantities in a system of equations of the first degree with two or three unknown quantities.—Method of Bezout.—Complete discussion of these formulas for the case of two unknown quantities.—Symbols  $\frac{a}{b}$  and  $\frac{c}{d}$ .

Discussion of three equations with three unknown quantities, in which the terms independent of the unknown quantities are null.

##### *Equations of the second degree with one unknown quantity.*

Calculus of radicals of the second degree.

Resolution of an equation of the second degree with one unknown quantity.—

Double solution.—Imaginary values.

When, in the equation  $ax^2+bx+c=0$ ,  $a$  converges towards 0, one of the roots increases indefinitely.—Numerical calculation of the two roots, when  $a$  is very small.

Decomposition of the trinomial  $x^2+px+q$  into factors of the first degree.—Relations between the coefficients and the roots of the equation  $x^2+px+q=0$ .

Trinomial equations reducible to the second degree.

Of the maxima and minima which can be determined by equations of the second degree.

Calculation of the *arithmetical* values of radicals.

Fractional exponents.—Negative exponents.

#### *Of series.*

Geometrical progressions.—Summation of the terms.

What we call a series.—Convergence and divergence.

A geometrical progression is convergent, when the ratio is smaller than unity; diverging, when it is greater.

The terms of a series may decrease indefinitely and the series not be converging.

A series, all the terms of which are positive, is converging, when the ratio of one term to the preceding one tends towards a *limit* smaller than unity, in proportion as the index of the rank of that term increases indefinitely.—The series is diverging when this *limit* is greater than unity. There is uncertainty when it is equal to unity.

In general, when the terms of a series decrease indefinitely, and are alternately positive and negative, the series is converging.

Combinations, arrangements, and permutations of  $m$  letters, when each combination must not contain the same letter twice.

Development of the entire and positive powers of a binomial.—General terms.

Development of  $(a + b\sqrt{-1})^n$ .

Limit towards which  $(1 + \frac{1}{n})^m$  tends, when  $n$  increases indefinitely.

Summation of piles of balls.

#### *Of logarithms and of their uses.*

All numbers can be produced by forming all the powers of any positive number, greater or less than one.

General properties of logarithms.

When numbers are in geometrical progression, their logarithms are in arithmetical progression.

How to pass from one system of logarithms to another system.

Calculation of logarithms by means of the series which gives the logarithm of  $n+1$ , knowing that of  $n$ .—Calculation of Napierian logarithms.—To deduce from them those of Briggs. Modulus.

Use of logarithms whose base is 10.—Characteristics.—Negative characteristics. Logarithms entirely negative are not used in calculation.

A number being given, how to find its logarithm in the tables of Callet. A logarithm being given, how to find the number to which it belongs.—Use of the proportional parts.—Their application to appreciate the exactness for which we can answer.

Employment of the sliding rule.

Resolution of exponential equations by means of logarithms.

Compound interest. Annuities.

#### *Derived functions.*

Development of an entire function  $F(x+h)$  of the binomial  $(x+h)$ .—Derivative of an entire function.—To return from the derivative to the function.

The derivative of a function of  $x$  is the limit towards which tends the ratio of the increment of the function to the increment  $h$  of the variable, in proportion as  $h$  tends towards zero.

Derivatives of trigonometrical functions.

Derivatives of exponentials and of logarithms.

Rules to find the derivative of a sum, of a product, of a power, of a quotient of functions of  $x$ , the derivatives of which are known.

#### *Of the numerical resolution of equations.*

Changes experienced by an entire function  $f(x)$  when  $x$  varies in a continuous manner.—When two numbers  $a$  and  $b$  substituted in an entire function  $f(x)$  give results with contrary signs, the equation  $f(x)=0$  has at least one real root not comprised between  $a$  and  $b$ . This property subsists for every species of function which remains continuous for all the values of  $x$  comprised between  $a$  and  $b$ .

An algebraic equation of uneven degree has at least one real root.—An algebraic equation of even degree, whose last term is negative, has at least two real roots.

Every equation  $f(x)=0$ , with coefficients either real or imaginary of the form  $a + b\sqrt{-1}$ , admits of a real or imaginary root of the same form. [Only the enunciation, and not the demonstration of this theorem, is required.]

If  $a$  is a root of an algebraic equation, the first member is divisible by  $x-a$ . An algebraic equation of the  $m^{\text{th}}$  degree has always  $m$  roots real or imaginary, and it cannot admit more.—Decomposition of the first members into factors of the first degree. Relations between the coefficients of an algebraic equation and its roots.

When an algebraic equation whose coefficients are real, admits an imaginary root of the form  $a+b\sqrt{-1}$ , it has also for a root the conjugate expression  $a-b\sqrt{-1}$ .

In an algebraic expression, complete or incomplete, the number of the positive roots cannot surpass the number of the variations; consequence, for negative roots.

Investigation of the product of the factors of the first degree common to two entire functions of  $x$ .—Determination of the roots common to two equations, the first members of which are entire functions of the unknown quantity.

By what character to recognize that an algebraic equation has equal roots.—How we then bring its resolution to that of several others of lower degree and of unequal roots.

Investigation of the commensurable roots of an algebraic equation with entire coefficients.

When a series of equidistant numbers is substituted in an entire function of the  $m^{\text{th}}$  degree, and differences of different orders between the results are formed, the differences of the  $m^{\text{th}}$  order are constant.

Application to the separation of the roots of an equation of the third degree.—Having the results of the substitution of  $-1$ ,  $0$ , and  $+1$ , to deduce therefrom, by means of differences, those of all other whole numbers, positive or negative.—The progress of the calculation leads of itself to the limits of the roots.—Graphical representation of this method.

Substitution of numbers equidistant by a tenth, between two consecutive whole numbers, when the inspection of the first results has shown its necessity.—This substitution is effected directly, or by means of new differences deduced from the preceding.

How to determine, in continuing the approximation towards a root, at what moment the consideration of the first difference is sufficient to give that root with all desirable exactness, by a simple proportion.

The preceding method becomes applicable to the investigation of the roots of a transcendental equation  $X=0$ , when there have been substituted in the first member, numbers equidistant and sufficiently near to allow the differences of the results to be considered as constant, starting from a certain order.—Formulas of interpolation.

Having obtained a root of an algebraic or transcendental equation, with a certain degree of approximation, to approximate still farther by the method of Newton.

Resolution of two numerical equations of the second degree with two unknown quantities.

Decomposition of rational fractions into simple fractions.

#### IV. TRIGONOMETRY.

In explaining the use of trigonometrical tables, the pupil must be able to tell with what degree of exactness an angle can be determined by the logarithms of any of its trigonometrical lines. The consideration of the proportional parts will be sufficient for this. It will thus be seen that if the *sine* determines perfectly a small angle, the degree of exactness, which may be expected from the use of that line, diminishes as the angle increases, and becomes quite insufficient in the neighborhood of 90 degrees. It is the reverse for the *cosine*, which may serve very well to represent an angle near 90 degrees, while it would be very inexact for small angles. We see, then, that in our applications, we should distrust those formulas which give an angle by its sine or cosine. The *tangent*

being alone exempt from these difficulties, we should seek, as far as possible, to resolve all questions by means of it. Thus, let us suppose that we know the hypotenuse and one of the sides of a right-angled triangle, the direct determination of the included angle will be given by a cosine, which will be wanting in exactness if the hypotenuse of the triangle does not differ much from the given side. In that case we should begin by calculating the third side, and then use it with the first side to determine the desired angle by means of its tangent. When two sides of a triangle and the included angle are given, the tangent of the half difference of the desired angles may be calculated with advantage; but we may also separately determine the tangent of each of them. When the three sides of a triangle are given, the best formula for calculating an angle, and the only one never at fault, is that which gives the tangent of half of it.

The surveying for plans, taught in the course of Geometry, employing only graphical methods of calculation, did not need any more accurate instruments than the chain and the graphometer; but now that trigonometry furnishes more accurate methods of calculation, the measurements on the ground require more precision. Hence the requirement for the pupil to measure carefully a base, to use telescopes, verniers, etc., and to make the necessary calculations, the ground being still considered as plane. But as these slow and laborious methods can be employed for only the principal points of the survey, the more expeditious means of the plane-table and compass will be used for the details.

In spherical trigonometry, all that will be needed in geodesy should be learned before admission to the school, so that the subject will not need to be again taken up. We have specially inscribed in the programme the relations between the angles and sides of a right-angled triangle, which must be known by the students; they are those which occur in practice. In tracing the course to be pursued in the resolution of the three cases of any triangles, we have indicated that which is in fact employed in the applications, and which is the most convenient. As to the rest, ambiguous cases never occur in practice, and therefore we should take care not to speak of them to learners.

In surveying, spherical trigonometry will now allow us to consider cases in which the signals are not all in the same plane, and to operate on uneven ground, obtain its projection on the plane of the horizon, and at the same time determine differences of level.

It may be remarked that Descriptive Geometry might supply the place of spherical trigonometry by a graphical construction, but the degree of exactitude of the differences of level thus obtained would be insufficient.



## PROGRAMME OF TRIGONOMETRY.

## 1. PLANE TRIGONOMETRY.

**Trigonometrical lines.**—Their ratios to the radius are alone considered.—Relations of the trigonometrical lines of the same angle.—Expressions of the sine and of the cosine in functions of the tangent.

Knowing the sines and the cosines of two arcs  $a$  and  $b$ , to find the sine and the cosine of their sum and of their difference.—To find the tangent of the sum or of the difference of two arcs, knowing the tangents of those arcs.

Expressions for  $\sin. 2a$  and  $\sin. 3a$ ;  $\cos. 2a$  and  $\cos. 3a$ ;  $\tan. 2a$  and  $\tan. 3a$ .

Knowing  $\sin. a$  or  $\cos. a$ , to calculate  $\sin. \frac{1}{2}a$  and  $\cos. \frac{1}{2}a$ .

Knowing  $\tan. a$ , to calculate  $\tan. \frac{1}{2}a$ .

Knowing  $\sin. a$ , to calculate  $\sin. \frac{1}{2}a$ .—Knowing  $\cos. a$ , to calculate  $\cos. \frac{1}{2}a$ .

Use of the formula  $\cos. p + \cos. q = 2 \cos. \frac{1}{2}(p+q) \cos. \frac{1}{2}(p-q)$ , to render logarithms applicable to the sum of two trigonometrical lines, sines or cosines.—To render logarithms applicable to the sum of two tangents.

Construction of the trigonometric tables.

Use in detail of the tables of Callet.—Appreciation, by the proportional parts, of the degree of exactness in the calculation of the angles.—Superiority of the tangent formulae.

*Resolution of triangles.*

Relations between the angles and the sides of a right-angled triangle, or of any triangle whatever.—When the three angles of a triangle are given, these relations determine only the ratios of the sides.

**Resolution of right-angled triangles.**—Of the case in which the hypotenuse and a side nearly equal to it are given.

Knowing a side and two angles of any triangle, to find the other parts, and also the surface of the triangle.

Knowing two sides  $a$  and  $b$  of a triangle and the included angle  $C$ , to find the other parts and also the surface of the triangle.—The  $\tan. \frac{1}{2}(A-B)$  may be determined; or  $\tan. A$  and  $\tan. B$  directly.

Knowing the three sides  $a, b, c$ , to find the angles and the surface of the triangle.—Employment of the formula which gives  $\tan. \frac{1}{2}A$ .

*Application to surveying for plans.*

Measurement of bases with rods.

Measurement of angles.—Description and use of the circle.—Use of the telescope to render the line of sight more precise.—Division of the circle.—Verniers.

Measurement and calculation of a system of triangles.—Reduction of angles to the centres of stations.

How to connect the secondary points to the principal system.—Use of the plane table and of the compass.

## 2. SPHERICAL TRIGONOMETRY.

Fundamental relations ( $\cos. a = \cos. b \cos. c + \sin. b \sin. c \cos. A$ ) between the sides and the angles of a spherical triangle.

To deduce thence the relations  $\sin. A : \sin. B = \sin. a : \sin. b$ ;  $\cot. a \sin. b - \cot. A \sin. C = \cos. b \cos. C$ , and by the consideration of the supplementary triangle  $\cos. A = -\cos. B \cos. C + \sin. B \sin. C \cos. a$ .

**Right-angled triangles.**—Formulas  $\cos. a = \cos. b \cos. c$ ;  $\sin. b = \sin. a \sin. B$ ;  $\tan. c = \tan. a \cos. B$ , and  $\tan. b = \sin. c \tan. B$ .

In a right-angled triangle the three sides are less than  $90^\circ$ , or else two of the sides are greater than  $90^\circ$ , and the third is less. An angle and the side opposite to it are both less than  $90^\circ$ , or both greater.

**Resolution of any triangles whatever:**

1<sup>o</sup> Having given their three sides  $a, b, c$ , or their three angles  $A, B, C$ .—Formulas  $\tan. \frac{1}{2}a$ , and  $\tan. \frac{1}{2}A$ , calculable by logarithms:

2<sup>o</sup> Having given two sides and the included angle, or two angles and the included side.—Formulas of Delambre:

3<sup>o</sup> Having given two sides and an angle opposite to one of them, or two angles and a side opposite to one of them. Employment of an auxiliary angle to render the formulas calculable by logarithms.

Applications.—Survey of a mountainous country.—Reduction of the base and of the angles to the horizon.—Determination of differences of level.

Knowing the latitude and the longitude of two points on the surface of the earth, to find the distance of those points.



### V. ANALYTICAL GEOMETRY.

The important property of homogeneity must be given with clearness and simplicity.

The transformation of co-ordinates must receive some numerical applications, which are indispensable to make the student clearly see the meaning of the formulas.

The determination of tangents will be effected in the most general manner by means of the derivatives of the various functions, which we inserted in the programme of algebra. After having shown that this determination depends on the calculation of the derivative of the ordinate with respect to the abscissa, this will be used to simplify the investigation of the tangent to curves of the second degree and to curves whose equations contain transcendental functions. The discussion of these, formerly pursued by laborious indirect methods, will now become easy; and as curves with transcendental equations are frequently encountered, it will be well to exercise students in their discussion.

The properties of foci and of the directrices of curves of the second degree will be established directly, for each of the three curves, by means of the simplest equations of these curves, and without any consideration of the analytical properties of foci, with respect to the general equation of the second degree. With even greater reason will we dispense with examining whether curves of higher degree have foci, a question whose meaning even is not well defined.

We retained in algebra the elimination between two equations of the second degree with two unknown quantities, a problem which corresponds to the purely analytical investigation of the co-ordinates of the points of intersection of two curves of the second degree. The final equation is in general of the fourth degree, but we may sometimes dispense with calculating that equation. A graphical construction of the curves, carefully made, will in fact be sufficient to make known, approximately, the co-ordinates of each of the points of intersection; and when we shall have thus obtained an approximate solution, we will often be able to give it all the numerical rigor desirable, by successive approximations, deduced from the equations. These considerations will be extended to the investigation of the real roots of equations of any form whatever with one unknown quantity.

Analytical geometry of three dimensions was formerly entirely taught within the Polytechnic school, none of it being reserved for the course of admission. For some years past, however, candidates were required to know the equations of the right line in space, the equation of the plane, the solution of the problems which relate to it and the transfor-

mation of co-ordinates. But the consideration of surfaces of the second order was reserved for the interior teaching. We think it well to place this also among the studies to be mastered before admission, in accordance with the general principle now sought to be realized, of classing with them that double instruction which does not exact a previous knowledge of the differential calculus.

We have not, however, inserted here all the properties of surfaces of the second order, but have retained only those which it is indispensable to know and to retain. The transformation of rectilinear co-ordinates, for example, must be executed with simplicity, and the teacher must restrict himself to giving his pupils a succinct explanation of the course to be pursued; this will suffice to them for the very rare cases in which they may happen to have need of them. No questions will be asked relating to the general considerations, which require very complicated theoretical discussions, and especially that of the general reduction of the equation of the second degree with three variables. We have omitted from the problems relating to the right line and to the plane, the determination of the shortest distance of two right lines.

The properties of surfaces of the second order will be deduced from the equations of those surfaces, taken directly in the simplest forms. Among these properties, we place in the first rank, for their valuable applications, those of the surfaces which can be generated by the movement of a right line.

## PROGRAMME OF ANALYTICAL GEOMETRY.

### 1. GEOMETRY OF TWO DIMENSIONS.

Rectilinear co-ordinates.—Position of a point on a plane.

Representation of geometric loci by equations.

Homogeneity of equations and of formulas.—Construction of algebraic expressions.

Transformation of rectilinear co-ordinates.

Construction of equations of the first degree.—Problems on the right line.

Construction of equations of the second degree.—Division of the curves which they represent into three classes.—Reduction of the equation to its simplest form by the change of co-ordinates.\*

Problem of tangents.—The coefficient of inclination of the tangent to the curve, to the axis of the abscissas, is equal to the derivative of the ordinate with respect to the abscissa.

#### *Of the ellipse.*

Centre and axes.—The squares of the ordinates perpendicular to one of the axes are to each other as the products of the corresponding segments formed on that axis.

The ordinates perpendicular to the major axis are to the corresponding ordinates of the circle described on that axis as a diameter, in the constant ratio of the minor axis to the major.—Construction of the curve by points, by means of this property.

Foci; eccentricity of the ellipse.—The sum of the radii vectors drawn to any point of the ellipse is constant and equal to the major axis.—Description of the ellipse by means of this property.

\* The students will apply these reductions to a numerical equation of the second degree, and will determine the situation of the new axes with respect to the original axes, by means of trigonometrical tables. They will show to the examiner the complete calculations of this reduction and the trace of the two systems of axes and of the curves.

**Directrices.**—The distance from each point of the ellipse to one of the foci, and to the directrix adjacent to that focus, are to each other as the eccentricity is to the major axis.

**Equations of the tangent and of the normal at any point of the ellipse.\***—The point in which the tangent meets one of the axes prolonged is independent of the length of the other axis.—Construction of the tangent at any point of the ellipse by means of this property.

The radii vectores, drawn from the foci to any point of the ellipse, make equal angles with the tangent at that point or the same side of it.—The normal bisects the angle made by the radii vectores with each other.—This property may serve to draw a tangent to the ellipse through a point on the curve, or through a point exterior to it.

The diameters of the ellipse are right lines passing through the centre of the curve.—The chords which a diameter bisects are parallel to the tangent drawn through the extremity of that diameter.—Supplementary chords. By means of them a tangent to the ellipse can be drawn through a given point on that curve or parallel to a given right line.

**Conjugate diameters.**—Two conjugate diameters are always parallel to supplementary chords, and reciprocally.—Limit of the angle of two conjugate diameters.—An ellipse always contains two equal conjugate diameters.—The sum of the squares of two conjugate diameters is constant.—The area of the parallelogram constructed on two conjugate diameters is constant.—To construct an ellipse, knowing two conjugate diameters and the angle which they make with each other.

Expression of the area of an ellipse in function of its axes.

#### *Of the hyperbola.*

**Centre and axes.**—Ratio of the squares of the ordinates perpendicular to the transverse axes.

Of foci and of directrices; of the tangent and of the normal; of diameters and of supplementary chords.—Properties of these points and of these lines, analogous to those which they possess in the ellipse.

**Asymptotes of the hyperbola.**—The asymptotes coincide with the diagonals of the parallelogram formed on any two conjugate diameters.—The portions of a secant comprised between the hyperbola and its asymptotes are equal.—Application to the tangent and to its construction.

The rectangle of the parts of a secant, comprised between a point of the curve and the asymptotes, is equal to the square of half of the diameter to which the secant is parallel.

Form of the equation of the hyperbola referred to its asymptotes.

#### *Of the parabola.*

**Axis of the parabola.**—Ratio of the squares of the ordinates perpendicular to the axis.

**Focus and directrix of the parabola.**—Every point of the curve is equally distant from the focus and from the directrix.—Construction of the parabola.

The parabola may be considered as an ellipse, in which the major axis is indefinitely increased while the distance from one focus to the adjacent summit remains constant.

**Equations of the tangent and of the normal.**—Sub-tangent and sub-normal. They furnish means of drawing a tangent at any point of the curve.

The tangent makes equal angles with the axis and with the radius vector drawn to the point of contact.—To draw, by means of this property, a tangent to the parabola, 1<sup>o</sup> through a point on the curve; 2<sup>o</sup> through an exterior point.

All the diameters of the parabola are right lines parallel to the axis, and reciprocally.—The chords which a diameter bisects are parallel to the tangent drawn at the extremity of that diameter.

Expression of the area of a parabolic segment.

**Polar co-ordinates.**—To pass from a system of rectilinear and rectangular co-ordinates to a system of polar co-ordinates, and reciprocally.

**Polar equations of the three curves of the second order,** the pole being situated at a focus, and the angles being reckoned from the axis which passes through that focus.

**Summary discussion of some transcendental curves.**—Determination of the tangent at one of their points.

**Construction of the real roots of equations of any form with one unknown quantity.**—Investigation of the intersections of two curves of the second degree.—Numerical applications of these formulas.

\* They will be deduced from the property, previously demonstrated, of the derivative of the ordinate with respect to the abscissa.

## 2. GEOMETRY OF THREE DIMENSIONS.

The sum of the projections of several consecutive right lines upon an axis is equal to the projection of the resulting line.—The sum of the projections of a right line on three rectangular axes is equal to the square of the right line.—The sum of the squares of the cosines of the angles which a right line makes with three rectangular right lines is equal to unity.

The projection of a plane area on a plane is equal to the product of that area by the cosine of the angle of the two planes.

Representation of a point by its co-ordinates.—Equations of lines and of surfaces. Transformation of rectilinear co-ordinates.

*Of the right line and of the plane.*

Equations of the right line.—Equation of the plane.

To find the equations of a right line,  $1^o$  which passes through two given points,  $2^o$  which passes through a given point and which is parallel to a given line.

To determine the point of intersection of two right lines whose equations are known.

To pass a plane,  $1^o$  through three given points;  $2^o$  through a given point and parallel to a given plane;  $3^o$  through a point and through a given right line.

Knowing the equations of two planes, to find the projections of their intersection.

To find the intersection of a right line and of a plane, their equations being known.

Knowing the co-ordinates of two points, to find their distance.

From a given point to let fall a perpendicular on a plane; to find the foot and the length of that perpendicular (rectangular co-ordinates).

Through a given point to pass a plane perpendicular to a given right line (rectangular co-ordinates).

Through a given point, to pass a perpendicular to a given right line; to determine the foot and the length of that perpendicular (rectangular co-ordinates).

Knowing the equations of a right line, to determine the angles which that line makes with the axes of the co-ordinates (rectangular co-ordinates).

To find the angle of two right lines whose equations are known (rectangular co-ordinates).

Knowing the equation of a plane, to find the angles which it makes with the co-ordinate planes (rectangular co-ordinates).

To determine the angle of two planes (rectangular co-ordinates).

To find the angle of a right line and of a plane (rectangular co-ordinates).

*Surfaces of the second degree.*

They are divided into two classes; one class having a centre, the other not having any. Co-ordinates of the centre.

Of diametric planes.

Simplification of the general equation of the second degree by the transformation of co-ordinates.

The simplest equations of the ellipsoid, of the hyperboloid of one sheet and of two sheets, of the elliptical and the hyperbolic paraboloid, of cones and of cylinders of the second order.

Nature of the plane sections of surfaces of the second order.—Plane sections of the cone, and of the right cylinder with circular base.—Anti-parallel section of the oblique cone with circular base.

Cone asymptote to an hyperboloid.

Right-lined sections of the hyperboloid of one sheet.—Through each point of a hyperboloid of one sheet two right lines can be drawn, whence result two systems of right-lined generatrices of the hyperboloid.—Two right lines taken in the same system do not meet, and two right lines of different systems always meet.—All the right lines situated on the hyperboloid being transported to the centre, remaining parallel to themselves, coincide with the surface of the asymptote cone.—Three right lines of the same system are never parallel to the same plane.—The hyperboloid of one sheet may be generated by a right line which moves along three fixed right lines, not parallel to the same plane; and, reciprocally, when a right line slides on three fixed lines, not parallel to the same plane, it generates a hyperboloid of one sheet.

Right-lined sections of the hyperbolic paraboloid.—Through each point of the surface of the hyperbolic paraboloid two right lines may be traced, whence results the generation of the paraboloid by two systems of right lines.—Two right lines of the same system do not meet, but two right lines of different systems always meet.—All the right lines of the same system are parallel to the same plane.—The hyperbolic paraboloid may be generated by the movement of a right line which slides on three fixed right lines which are parallel to the same plane; or by a right line which slides on two fixed right lines, itself remaining always parallel to a given plane. Reciprocally, every surface resulting from one of these two modes of generation is a hyperbolic paraboloid.

General equations of conical surfaces and of cylindrical surfaces.

## VI. DESCRIPTIVE GEOMETRY.

The general methods of Descriptive Geometry,—their uses in Stone-cutting and Carpentry, in Linear Perspective, and in the determination of the Shadows of bodies,—constitute one of the most fruitful branches of the applications of mathematics. The course has always been given at the Polytechnic School with particular care, according to the plans traced by the illustrious *Monge*, but no part of the subject has heretofore been required for admission. The time given to it in the school, being however complained of on all sides as insufficient for its great extent and important applications, the general methods of Descriptive Geometry will henceforth be retrenched from the internal course, and be required of all candidates for admission.

As to the programme itself, it is needless to say any thing, for it was established by *Monge*, and the extent which he gave to it, as well as the methods which he had created, have thus far been maintained. We merely suppress the construction of the shortest distance between two right lines, which presents a disagreeable and useless complication.

Candidates will have to present to the examiner a collection of their graphical constructions (*épures*) of all the questions of the programme, signed by their teacher. They are farther required to make free-hand sketches of five of their *épures*.

## PROGRAMME OF DESCRIPTIVE GEOMETRY.

*Problems relating to the point, to the straight line, and to the plane.\**

Through a point given in space, to pass a right line parallel to a given right line, and to find the length of a part of that right line.

Through a given point, to pass a plane parallel to a given plane.

To construct the plane which passes through three points given in space.

Two planes being given, to find the projections of their intersection.

A right line and a plane being given, to find the projections of the point in which the right line meets the plane.

Through a given point, to pass a perpendicular to a given plane, and to construct the projections of the point of meeting of the right line and of the plane.

Through a given point, to pass a right line perpendicular to a given right line, and to construct the projections of the point of meeting of the two right lines.

A plane being given, to find the angles which it forms with the planes of projection.

Two planes being given, to construct the angle which they form between them.

Two right lines which cut each other being given, to construct the angle which they form between them.

To construct the angle formed by a right line and by a plane given in position in space.

*Problems relating to tangent planes.*

To draw a plane tangent to a cylindrical surface or to a conical surface, 1° through a point taken on the surface; 2° through a point taken out of the surface; 3° parallel to a given right line.

Through a point taken on a surface of revolution, whose meridian is known, to pass a plane tangent to that surface.

\* The method of the change of the planes of projection will be used for the resolution of these problems.

*Problems relating to the intersection of surfaces.*

To construct the section made, on the surface of a right and vertical cylinder, by a plane perpendicular to one of the planes of projection.—To draw the tangent to the curve of intersection.—To make the development of the cylindrical surface, and to refer to it the curve of intersection, and also the tangent.

To construct the intersection of a right cone by a plane perpendicular to one of the planes of projection. Development and tangent.

To construct the right section of an oblique cylinder.—To draw the tangent to the curve of intersection. To make the development of the cylindrical surface, and to refer to it the curve which served as its base, and also its tangents.

To construct the intersection of a surface of revolution by a plane, and the tangents to the curve of intersection.—To resolve this question, when the generating line is a right line which does not meet the axis.

To construct the intersection of two cylindrical surfaces, and the tangents to that curve.

To construct the intersection of two oblique cones, and the tangents to that curve.

To construct the intersection of two surfaces of revolution whose axes meet.

**VII. OTHER REQUIREMENTS.**

The preceding six heads complete the outline of the elementary course of mathematical instruction which it was the object of this article to present; but a few more lines may well be given to a mere enumeration of the other requirements for admission to the school.

MECHANICS comes next. The programme is arranged under these heads: Simple motion and compound motion; Inertia; Forces applied to a free material point; Work of forces applied to a movable point; Forces applied to a solid body; Machines.

PHYSICS comprises these topics: General properties of bodies; Hydrostatics and hydraulics; Densities of solids and liquids; Properties of gases; Heat; Steam; Electricity; Magnetism; Acoustics; Light.

CHEMISTRY treats of Oxygen; Hydrogen; Combinations of hydrogen with oxygen; Azote or nitrogen; Combinations of azote with oxygen; Combination of azote with hydrogen, or ammonia; Sulphur; Chlorine; Phosphorus; Carbon.

COSMOGRAPHY describes the Stars; the Earth; the Sun; the Moon; the Planets; Comets; the Tides.

HISTORY and GEOGRAPHY treat of Europe from the Roman Empire to the accession of Louis XVI.

GERMAN must be known sufficiently for it to be translated, spoken a little, and written in its own characters.

DRAWING, besides the *épures* of descriptive geometry, must have been acquired sufficiently for copying an academic study, and shading in pencil and in India ink.

Will not our readers agree with M. Coriolis, that "*There are very few learned mathematicians who could answer perfectly well at an examination for admission to the Polytechnic School*"?



## XII. MODERN GREEK LANGUAGE.

BY R. G. HOWE.

THE importance of the study of the ancient Greek language, has been set forth in this Journal. Valuable hints and suggestions upon the subject are to be found in Prof. Lewis' articles in the preceding volume.

Our object now is to show how new interest and importance may be given to the study of the language and literature of the old Greeks, by connecting it with the study of the language and the literature of the modern Greeks. For which, Prof. Felton has given increased facilities by the publication of a volume of Selections from their best writers.\*

In our utilitarian age and country, there is a growing prejudice against the study of the Greek and Latin, partly because a knowledge of those languages is difficult to be attained; partly because some regard it as a sort of aristocratic accomplishment; partly because others think that the time spent in attaining it might be better spent in something else; but mainly because very few know anything about the matter. The popular misnomer of *dead language* as applied to Greek, is proof of this. The language is not dead, and probably never will be. The Greeks of to-day can read Homer more easily than we can read Chaucer; and they can read Xenophon about as easily as we read Spencer. But suppose they could not. Suppose, indeed, there were no living Greeks, would the old Greek language be dead? Not in any just sense. We have hundreds of aspirants for immortality in every branch of literature, and they have their respective thousands of admirers, who believe their reputations will win in the race against time; but we will back old Homer against any living poet, Aristotle against any philosopher, Socrates against any moralist, Demosthenes against any orator; we will give to their living rival two thousand years the start, and feel sure that they will be beaten, and left out of sight in ages, when the names and work of the ancients will be as fresh and green as they are now.

But taking it for granted that an intimate knowledge of the Greek will always be sought by those who aspire to high scholar-

\* Selections from modern Greek writers in Prose and Poetry, with notes by C. C. Felton, L.L.D., Eliot Professor of Greek in Harvard University.  
No. 5.—[Vol. II, No. 1.]—13.



ship, and that the study of it will not be banished from our high seminaries, we would urge a few considerations in favor of having the language taught in such a manner that it will be in no sense a dead language; to wit, in connection with the spoken and written language of several millions of living men.

This can be done without much additional study, and when done may become very useful by opening to the student the living language of the most active and intelligent people of the East; a people who have their universities, their gymnasia, and their common schools, their periodicals, and their newspapers; and who are fast building up a literature which shows them to be worthy descendants of their illustrious ancestors.

The political revolution which the Greeks recently effected so completely, is not the only one which they have attempted. They have aimed also at effecting an equally remarkable revolution in their national language, by driving out all foreign words and phrases which their conquerors, especially the Italians and Turks had left; by correcting grammatical corruptions, and by bringing it back as nearly as possible to its old condition of most beautiful, flexible, and expressive language yet contrived by man.

This attempt was certainly as remarkable as it was bold. We know no other instance in history where a people, or race, has consciously and purposely undertaken such a task. Such changes in language are usually made slowly and unconsciously; but the Greeks went to work earnestly, purposely, and almost unanimously. It was not merely the work of scholars; they could have done nothing alone; but the people, who clung to the memory of their high descent, who always persisted in calling their boys Pericles, and Socrates, and Leonidas, and their girls Aspasia, and Helena, and Penelope,—the common people seconded the scholars in the high attempt, and set about discarding what they understood to be foreign words, and using native ones with an eagerness which would have seemed puerile and useless, if its purpose had not been so good, and its success so remarkable.

This redemption of a language is such an extraordinary thing, that it is worth notice.

The natural brotherhood of man is shown in the tendency to a common form of speech which is manifested as soon as social relations are established. So surely as men of different nations come into relation with each other, even if it be relations of war, so surely do they begin to form a common language. Their leaders bring them together as enemies, but they soon form relations as friends.

We saw the beginning of the process of assimilation of languages when our army in Mexico sent home among the worthless spoils of war, such words as *vamos*, *ranchos*, *fillibuster*, and the like. This process however goes on most rapidly in countries conquered and occupied by strangers. The strangers usually impose even their language upon the natives. Greece was conquered and occupied for ages by Romans, by barbarians, by French, by Venitians, by Turks, and each left as bad legacies, broken bits of speech, until the colloquial language of the country became a curious mosaic, of which the ground work, however, was still the old Greek.

Space permits not mention of all the causes which have saved the language from utter loss. The main ones are, first, the strong *nationality* of the race which repelled social intercourse, and checked intermarriage; and which demanded and obtained for the people the right of administering their own municipal affairs. Even under the Turks, many a Greek village elected its own *Δημογερντες*,—its Selectmen, who collected the tribute from the Pashas, and who had considerable power. Many villages especially in the mountain regions, had never been entered by the conqueror.

Second, the preservation of the Greek Church. This with all its mummeries, and its absurdities, has been of immense advantage. In the quiet and secluded monasteries, was many a copy of the old classics, and many a monk to pore over them; while the priests repeated the church ritual, and the prayers in good Greek, century after century, in thousands of little chapels; for even while the crescent shone over every large town, and upon every fortress wall, the cross stood meekly in the villages and hamlets of the plains, and up in the green nooks among the mountains.

By these, and other means, a knowledge of, and even familiarity with the old Greek was kept up in Greece. The standard still existed.

Early in this century, and long before the revolt of the country against Turkey, there was a manifest revival of Greek literature, which was fostered by the Greek merchants who had settled and grown rich in Europe, especially in the southern part of Russia. Several presses were established, and books were printed in the modern Greek language. Their authors aimed at elevating the style, and bringing back the language toward its old type. Prominent among these was Corais, whose singular merit and virtues did not escape the eagle eye of Napoleon. Encouraged and aided by the French government, he established himself at Paris, and not only issued many valuable

works written in a style which still serves as a model, but he greatly encouraged native Greek writers elsewhere.

When the political revolution was effected, the Greeks with singular unanimity, turned their attention to the preservation of all the relics of their glorious ancestry. Among the first laws passed was one erecting a national museum of antiquities, to be kept in the temple of Theseus, and one forbidding the exportation of statuary.

But the most wonderful and lasting monument which the ancient Greeks built, was their language. We all have a general idea of its richness, sweetness, and flexibility; but scholars only know its graceful beauty, and wondrous strength. This monument has withstood the assaults of time better even than the Parthenon; for though there remains so much of that magnificent temple that with moderate means it may be restored to its old beauty of form and outline, yet no money can replace its treasures of painting and sculpture, for no living man hath the genius to re-create them. But of the old language no parts have been utterly lost,—they have only fallen into disuse.

Even the popular speech has ever been substantially genuine Greek. The principal changes in the structure of the language have been in the mode of using verbs and nouns. Instead of expressing the tenses by mere changes in the form of the root, auxiliary verbs have been introduced; and instead of expressing cases of nouns by changes in the termination, prepositions have come into use, thus conforming to other modern languages.

It was an easy matter to get rid of the foreign rubbish; but it was a serious one to attempt to restore the ancient structure. There were some enthusiastic enough to propose this, but other councils prevailed, and by general consent, the radical form of the modern Greek was to be retained, while all foreign words were to be rooted out.

It is very curious to note how eagerly the people seconded the scholars. Not only did the writers of newspapers, periodicals, and school-books, carefully eschew all foreign idioms, but the common people threw over the words which their former tyrants had left, as eagerly as though they had been the very bodies of Turks and Italians. As we, when our attention is directed to it, drop such corruptions as *daddy* and *mammy*, and return to father and mother, so the Greeks rejected such corruptions *Mávva*, *Πάππας* and returned to *Πατήρ*, *μήτηρ*, and the like. But the Greeks did more than we can be induced to do, for our people cling to *vest*, *pants*, and other vulgarity, leaving our good English *waistcoat* and *trousers*; while they

eagerly substituted pure Greek words for the foreign ones as fast as they were pointed out,

The sailors and soldiers vied with civilians, and though such words as *Capitani*, *Generale Presidente*, had been very common; they immediately substituted the old Greek titles and saluted their leaders as *ναύαρχος*, *στρατηγός*, and *πρόεδρος*.

But not to dwell upon particulars, the result may be stated in a few words. There is now perfect freedom of the press in Greece. There are over thirty newspapers, several periodicals, regularly published, and there are many presses at work throwing off great numbers of works, especially school books. It is stated on good authority, that one single publishing house,—that of Koromelas,—in Athens, published in the last year, over a half million copies of textbooks for the University, the Gymnasia, and the common schools.

These are, for the most part, written in a style so nearly approaching the old language that any good Greek scholar can read them after a very little attention to the difference in form of inflexions.

Nor is it a mere matter of reading. The Greeks are fast developing their natural resources. They are the most active, intelligent, and successful traders in the East. Their superiority in point of physical organization, and their actual advantages in point of education, will soon give them great influence among the motley races which make up the Turkish empire, if not the actual mastery. The popular speech of this rising people is, [as we have said] in the main, genuine Greek. It is surely then most desirable that our youth who are studying the Greek language, should study it in connection with that modification of it so extensively used. It is in order to enable them to do this that Professor Felton has prepared with great care and ability the work at the head of this article; and we commend it heartily to all who are engaged in the study of ancient Greek.

## XIV. PHILOLOGICAL CONTRIBUTIONS.

### EARLY LATIN ACCENTUATION.

A NEW theory in reference to the early accentuation of Latin has lately been suggested by Dr. A. Dietrich, of Pforte, in Saxony. It is given in Aufrecht and Kuhn's *Zeitschrift für vergleichende Sprachforschung*, Band I. Heft 6. Berlin, 1852. According to the tradition of Latin grammarians, the accent, in words of more than one syllable, is placed either on the penult, or else on the antepenult, and this point is regulated or determined by the quantity of the penult syllable. According to the new theory, the accent in Latin was originally placed on the radical syllable of the word, even if it came before the antepenult; and in words with prefixes, and in compound words, the accent was placed on the preposition, or on the first part of the compound; the usual Latin accentuation having arisen at a later period.

This theory rests, it is curious to observe, on no direct or positive evidence. It is inferred merely from its effects, that is, it is deduced from certain phenomena observable in the language.

1. The abridged forms, *junior*, *ditior*, *poplicus*, *amasti*, are more easily explained, if derived from *ju'venior*, *di'vitiō*, *po'puli'cus*, *am'a-visti*, with the accent on the radical syllable, than if derived from *juve'nior*, *divi'tior*, *popu'licus*, *amavis'ti*, with the accent on the syllable fallen out; for such accent would naturally tend to preserve the syllable.

2. The derivative forms, *velabrum*, *candelabrum*, *salubris*, *lugubris*, for *velaberum*, *condelaberum*, *saluberis*, *luguberis*, (the suffix being supposed to be derived from Lat. *fero*.) are more easily explained by supposing an accent on the first or radical syllable, than by supposing an accent on any subsequent syllable. The earlier the accent is in the word, the more liable is the vowel in question to fall out.

3. The forms *agnitus*, *dejero*, *nihilum*, shortened from *agnatus*, *deju'ro*, *nih'ilum*, are more easily explained by supposing an accent on the preposition or the first part of the compound, than by an accent on the penult according to the usual laws of Latin prosody.

4. But the most numerous and important class of words, whose

form is explained by the theory before us, is the attenuation of the radical vowel in words compounded with prepositions; as, *ascendo* from *scando*, *compingo* from *pango*, *colligo* from *lego*, *illico* from *loco*, *concido* from *caedo*, *insulto* from *salto*, *includo* from *claudio*, *obedio* from *audio*. The cause of this attenuation has not before been so satisfactorily explained, as by this theory.

## REMAINS OF ANCIENT GENDER IN ENGLISH.

It was an original trait of the whole Indo-European stock of languages, that many inanimate objects, and even abstract actions, qualities, and attributes, were regarded as having life and personality, and even as endued with sex. This was a sort of personification, and is to be ascribed to the lively imagination of the first language-makers.

This remarkable peculiarity, it is well known, continued to exist in its full vigor, in Anglo-Saxon and Latin, the languages whence the English is mainly derived.

Although this peculiarity has yielded in ordinary English to a more natural and logical view of gender, yet in some words it is still retained in poetry and elevated prose.

This usage, in English, is often called the *rhetorical* or *poetical* gender, and is generally regarded as arising from a direct and new personification at the time; but, in my view, it is more philosophical and more consonant with fact, to consider it as a continuance of the ancient gender, and to deduce it from the original languages above named.

In accordance with this principle, we shall find that *the substantive thus personified, as a general rule, has the gender of the original word whence it is derived.*

1. Many names of inanimate objects which are found used as masculine in English poets and other writers, are masculine in the original languages; as, *April*, (comp. Lat. *mensis*, m.) *comet*, (Lat. *cometes*, m.) *dandelion*, (Fr. *dent de lion*, m.) *elm*, (Anglo-Sax. *ellm*, perhaps m. comp. Fr. *orme*, m.) *flood*, (Anglo-Sax. *flôd*, n. but comp. Old Sax. *flod*, m. Fr. *flot*, m.) *hill*, (Anglo-Sax. *hill*, m.) *mountain*, (Lat. *mons*, m.) *northeast*, (comp. Anglo-Sax. *wind*, m. Lat. *ventus*, m.) *sea*, (Anglo-Sax. *sæ*, f. but comp. Old Sax. *seo*, m.) *star*, (Anglo-Sax. *steorra*, m.) *sun*, (Anglo-Sax. *sunne*, f. but comp. Lat. *sol*, m.) *Tartarus*, (Lat. *Tartarus*, m.) *thunder*, (Anglo-Sax. *thuner*, m.) *tower*, (Anglo-Sax. *torr*, m.) *winter*, (Anglo-Sax. *winter*, m.) etc.

2. Many names of inanimate objects which are found used as feminine in English poets and other writers, are feminine in the original languages; as, *Ætna*, (Lat. *Aetna*, f.) *air*, (Lat. *aer*, m. but comp. Gr. *ἀήρ*, f. Anglo-Sax. *lyft*, f.) *bark*, (Fr. *bargue*, f.) *church*, (Anglo-Sax.

*circ*, f.) *city*, (Lat. *civitas*, f.) *comedy*, (Lat. *comædia*, f.) *country*, (Fr. *contrée*, f.) *earth*, (Anglo-Sax. *eard*, m. but comp. Lat. *terra*, f.) *echo*, (Lat. *echo*, f.) *eglantine*, (Fr. *eglantine*, f.) *fig-tree*, (comp. Lat. *ficus*, f.) *hell*, (Anglo-Sax. *hell*, f.) *hour*, (Lat. *hora*, f.) *law*, (Fr. *loi*, f.) *mind*, (Anglo-Sax. *gemynd*, m. but comp. Lat. *mens*, f.) *moon*, (Anglo-Sax. *mona*, m. but comp. Lat. *luna*, f.) *muse*, (Lat. *musæ*, f.) *music*, (Lat. *musica*, f.) etc.

3. Most abstract nouns which, when personified, are treated as feminine in English, have the termination of feminine nouns in the original languages; as, *oblivion*, *opinion*, *affection*, *ambition*, *compassion*, *derision*, *benevolence*, *experience*, *chance*, *decay*, *avarice*, *justice*, *piety*, *society*, *pity*, *cruelty*, *beauty*, *duty*, *astronomy*, *philosophy*, *concord*, *discord*, *envy*, *fancy*, *nature*, *pleasure*, *virtue*, *form*, *fortune*, *darkness*, *happiness*, *faith*, *truth*, etc.

4. Some abstract nouns which are treated as masculine, are masculine in the original languages; as, *honor*, *terror*, *love*, *fear*, *sleep*, *disease*, etc.

5. Some nouns, however, in English, either from inattention, or from the crossing of opposite principles, have deviated from the preceding rules, and are found treated sometimes as masculine, and sometimes as feminine. Thus, *age*, masc. in Shakspeare and Somerville, fem. in Shakspeare and Sterne; *conscience*, masc. in Darwin, fem. in Fielding and Young; *contemplation*, masc. in Akenside, fem. in Dyer and Mrs. Barbauld; *heaven*, masc. in Shakspeare and Milton, fem. in Milton and Young. So *providence*, *genius*, *vengeance*, *war*, *autumn*, *lily*, etc., are used sometimes as masculine, and sometimes as feminine.

#### PRETERITIVE VERBS IN ENGLISH.

It is well known that there are preteritive verbs in Latin; as, *coepi*, I begin; *memini*, I remember; *novi*, I know; *odi*, I hate.

It is well known that there are preteritive verbs in Greek; as, *οἶδα*, I know.

But it is not so well known that there are also preteritive verbs in English, because the evidence of their possessing this character is only partially exhibited in the English language.

By *preteritive* verbs I intend verbs in the past tense now used to denote present time.

These verbs are *I can*, *I may*, *I must*, *I ought*, *I shall*, *I will*, *woth I*, *I wot*.

These verbs are known, (1.) by the inflection of the singular, which accords with that of the past tense and differs from that of the present tense in other verbs; as, *I can*, *thou canst*, *he can*, not *I can*, *thou*



*canst, he canneth or cans* ; (2.) by their being formed from infinitives by a change of vowel (where the nature of the vowel permits it) after the strong conjugation ; as, *I can*, from *to ken* ; *quoth* from *to queathe*, *wot* from *to wit* ; (3.) by their sometimes having the *t* or *d* of the preterite tense ; as, *must, ought* ; and (4.) by their receiving in the plural in other dialects the vowel of the infinitive, which accords in those dialects with the past tense, and not with the present ; as in *can, may, shall, and will*.

1. *I can, thou canst, he can* ; comp. Goth. *kann*, plur. *kunnum*, from infin. *kunnan*=Eng. *to ken or know*.

Knowledge in this case is power ; *to know* how to do a thing is *to be able* to do it.

This verb forms a new preterite after the weak inflection ; as Goth. *kann*, past *kuntha* ; Germ. *kann*, past *konnte* ; but in English this verb by a singular freak forms the past tense *could*, after the analogy of *should* and *would*.

*Can* is used in English only as an auxiliary of mode, denoting potentiality, and is wanting in the participles, infinitive, and imperative.

The primitive verb *I ken* in English is only obsolescent, not obsolete, and has the weak inflection.

2. *I may, thou mayest, he may* ; comp. Germ. *mag*. plur. *mögen*, from infin. *mögen*, to be able.

This verb which, like its derivatives *might* and *main*, originally denoted power, now in English denotes only possibility.

This verb forms a new preterite after the weak inflection ; as, Goth. *mag*, pret. *makta* ; Germ. *mag*, pret. *mochte* ; Eng. *may*, past *might*.

*May* is used in English only as an auxiliary of mode, denoting possibility, and is wanting in the participles, imperative and infinitive.

3. *I must, thou must, he must* ; comp. Germ. *musste*, (used only as a preterite) from *mussen*, to be obliged.

This verb is used in English as a preterite, as well as a present tense.

This verb may be considered as an auxiliary of mode, and is wanting in the participles, imperative and infinitive.

4. *I ought, thou oughtest, he ought* ; comp. Goth. *aih*, plur. *aigum*, from infin. *aigan*, to have=Eng. *to owe or own*.

Possession becomes a sort of duty ; *to have* to do a thing is *to owe* to do it.

This verb is used in English as a preterite, as well as a present tense.

This verb may be considered as an auxiliary of mode, and is wanting in the participles, infinitive and imperative.

The primitive verb *I owe*, with the weak inflection, is still in use to denote pecuniary obligation.

5. *I shall, thou shalt, he shall*; comp. Goth. *skal*, plur. *skulum*, from infin. *skulan*, to be obliged.

Necessity in this case involves futurity; *to be obliged* to do a thing is *to be about* to do it.

This verb forms a new preterite after the weak inflection; as, Goth. *skal*, past *skulda*; Germ. *soll*, past *sollte*; Eng. *shall*, past *should*.

*Shall* is used in English as an auxiliary of tense, and when emphatic as an auxiliary of mode.

6. *I will, thou wilt, he will*; comp. Germ. *will*, plur. *wollen*, from infin. *wollen*, to will.

Volition here passes into futurity; *to will* a thing is *to make* future its accomplishment.

This verb forms a new preterite after the weak inflection; as, Goth. *wily*, past *vilda*; Germ. *will*, past *wollte*; Eng. *will*, past *would*.

*Will* is used in English as an auxiliary of tense and mode, and is wanting in the participles, imperative and infinitive.

The original verb, or a modification of it, inflected after the weak conjugation, is still used in philosophic language to denote the having a volition, and has then the infinitive, and both participles.

7. *Quoth I, quoth he*; comp. Goth. *gath*, plur. *gethum*, from infin. *githan*, Anglo Sax. *cwæth*, plur. *cwædon*, from *cwæthan*, "to say" = *queathe*, in Eng. *bequeathe*.

8. *I wot, thou wottest, he wot*; from infin. *to wit*, is used as a present tense; and *wist*, preterite from *to wis*, is used as its preterite.

J. W. G.

## XV. THE PUBLIC LIBRARY OF THE CITY OF BOSTON.

BY G. S. HILLARD.

---

THE Public Library of the city of Boston sprang from a feeling, on the part of some of its most thoughtful and judicious citizens, that the system of public education, so liberally provided for the young, might be, and should be, extended to those of more mature age. The school training does not go beyond the sixteenth year; and, though boys not destined for the learned professions annually engage in some active business, after that period, yet there is a considerable portion of their time not absorbed by the duties they owe to their employers, which may be happily and wisely occupied in the reading of good books. With still more force does this consideration apply to girls, who form one half of the rising generation, and whose mental training, in view of their future destiny as wives and mothers, is a matter of much importance. A considerable proportion of them belong to families in such comfortable circumstances that they are not compelled to labor for their daily bread; and thus, when withdrawn from the regular duties of the school, they are thrown upon themselves for some hours of every day, in which, if well employed, much useful knowledge may be gained, and the habits of regular occupation, formed at school, may be kept up. Besides these, there are, in so intelligent a community as that of Boston, many men and women, with love of knowledge and taste for reading, who find it difficult to procure good books, and who will gladly embrace the means of intellectual improvement which are furnished by access to a large and well-chosen public library.

These views, formed and gradually extended among the community at large, found expression in the City Council of 1848; and, in conformity with an order passed by them, the mayor, Mr. Josiah Quincy, Jr., obtained from the Legislature an act to authorize the city of Boston to establish and maintain a public library for the use of the inhabitants of the said city. By the same act, the City Council were clothed with the power of making rules and regulations for the care and maintenance of the library; but no appropriations were to exceed the sum of five thousand dollars in any one year. The act was approved by the Governor, March 18th, 1848.

This act of incorporation may be considered the birth of the library. At that time there were no books belonging to it, and no appropri-

ations were then made toward procuring any. The first donation of books, ninety-six in number, came by way of international exchange, through the agency of Mons. Vattemare, of Paris, in the year 1849. The second, in point of time, was that of Mr. Robert C. Winthrop, consisting of one hundred and eighty-seven volumes, sent in the autumn of 1849. Two hundred and nineteen volumes were next received from Mr. J. D. W. Williams, of Roxbury; and smaller contributions from a number of other persons soon followed.

In the summer of 1850, Mr. John P. Bigelow, then mayor of the city, made a donation of one thousand dollars (being a large portion of a sum of money contributed by his fellow-citizens as a mark of personal kindness towards himself) for the use of the library; which was acknowledged in suitable terms by the Board of Aldermen, to the chairman of which body Mr. Bigelow's communication was addressed.

In August, 1850, a communication was addressed by Mr. Edward Everett to the mayor of the city, offering his collection of public documents and State papers, comprising about one thousand volumes, to the city, for the use of the public library, whenever suitable accommodations were made to receive it. In June, 1851, a second communication was addressed by Mr. Everett to the mayor, containing a catalogue of the books he had in the previous year given to the city, and making some observations on the utility of a public library and the objects to be attained by it, from which a portion may here be appropriately introduced:

"The city of Boston expends annually, I believe, a larger sum for schools and school-houses, in proportion to its population, than any city in Europe. Nothing like the same sum is appropriated by the city of London for these purposes. By this noble liberality the means are provided for giving our children of both sexes a good education up to the age of sixteen or seventeen years. This is done at the public expense and for public motives. Individuals, as such, have no more claim upon the public for their education than for their board and clothing. The first principles of popular government require that the means of education should, as far as possible, be equally within the reach of the whole population. This can be effected in no other way than by a system of education supported by the public. The same great motive of public policy requires that the schools should be of a very superior order, so that every child may receive, not merely an education, but an excellent education; as good as could be got at the best and most expensive private schools. I know of no place where these principles are so thoroughly carried out as in Boston; in other words, where so great an equality exists in reference to the inestimable benefit of an early education.

"This, however, is the case only up to the age when school education is at an end. We provide our children with the elements of learning and science, and put it in their power, by independent study and research, to make further acquisitions of useful knowledge from books; but where are they to find the books in which it is contained? Here the noble principle of equality sadly fails. The sons of the wealthy alone have access to well-stored libraries; while those whose means do not allow them to purchase books are too often debarred from them at the moment when they would be most useful. We give them an elementary education, impart to them a taste, and inspire them with an earnest desire for further attainment, — which unite in making books a necessary of intellectual life, — and then make no provision for supplying them.

"I would not overrate the importance of book-learning. It is of little value without original inquiry and original thought. But good books are the record of the original inquiry and thought of able men; which surely do not lose their value by being put upon paper for the benefit of others. Every one regards an opportunity of personal intercourse with men eminent for talent and learning as a great privilege and source of improvement; — to study their works is most effectually to cultivate this intercourse. It is generally impossible, from the nature of the case, to have personal intercourse with any persons of eminence except a very few of our own countrymen and cotemporaries. By books we get access to the great men of every country and every age.

"Is it not, then, a reproach to our city, that — as far as the means of carrying on the great work of instruction beyond the limits of school education are concerned — no public provision exists in favor of those unable to indulge in what is now the expensive luxury of a large library? Where is the young engineer, machinist, architect, chemist, engraver, painter, or student in any of the professions or of any of the exact sciences, or of any branch of natural history, or of moral or intellectual philosophy, to get access to the books which are absolutely necessary to enable him to pursue his inquiries to any advantage? There are no libraries in Boston which strictly speaking are public. The library of the Athenæum and other similar collections are private property. They are administered with all practicable liberality; but are not and cannot be open to the public. Nothing is left to young men who cannot afford to buy books but to borrow them of individuals; — a very precarious and inadequate dependence, and one of which but very few can take advantage.

"For these reasons I cannot but think that a public library, well supplied with books in the various departments of art and science,

and open at all times for consultation and study to the citizens at large, is absolutely needed to make our admirable system of public education complete; and to continue in some good degree through life that happy equality of intellectual privileges, which now exists in our schools, but terminates with them. And I feel confident that with such moderate coöperation as I have indicated, on the part of the city, reliance may be safely placed upon individuals to do the rest. The public library would soon become an object of pride to the citizens of Boston; and every one would feel it an honor to do something for its increase."

In June, 1852, a donation of five hundred dollars, to be expended in such books as Mr. Everett should select, was made by the late Mr. James Brown, whose large and generous sympathies embraced everything that was useful and good; and in September of the same year a donation of one thousand dollars was made, to be expended in the purchase of books, by the late Mr. Samuel Appleton, a man not more remarkable for the energy and industry with which he accumulated a large fortune, than for the benevolence and public spirit with which he expended it.

In the autumn of 1852, a most important event occurred in the history of the library, — the munificent donation of Mr. Joshua Bates, of London. The high position which this gentleman holds in the mercantile world of England, the respect universally accorded to his judgment, experience, and integrity, and the general weight of his character, are well known to his countrymen, and are subjects of just pride to every American visiting London. Born in the neighborhood of Boston, and receiving his first commercial training here, in the counting-room of the late William Gray, he has retained through life a warm attachment to the place, and a lively interest in its progress and fortunes. By his letter of October 1st, 1852, Mr. Bates expresses his readiness to give the noble sum of fifty thousand dollars, the income of which was to be appropriated for the purchase of books for the library, on condition that the city furnish a suitable building for their accommodation, of a size sufficient to furnish room for from one hundred to one hundred and fifty persons to sit at reading-tables. This most generous offer was acknowledged in due terms by the City Council. In the spring of 1853, the amount thus given by Mr. Bates was actually received and invested.

In the spring of 1858, the liberality of Mr. Bates was imitated by Mr. Jonathan Philips, a distinguished citizen of Boston, who gave the sum of ten thousand dollars to the library, the income only to be expended for the purchase of books. A donation of one hundred dollars had previously been received from Mr. James Nightingale.

The library thus far, though so successfully inaugurated, had no local habitation. It had been under the control of a board of trustees, chosen in part from the City Council, and in part from the citizens at large. In the report of the trustees made in July, 1852, they had proposed to the city government to appropriate for the accommodation of the books the ground floor of the Adams school-house in Mason-street. The proposal was favorably received; the premises suggested were granted to the use of the library, and were conveniently fitted up for the purposes required.

The reading-room was opened March 20th, 1854, and on May 2d of the same year the circulating department of the library was opened to public use. The city of Boston, in its official capacity, acted with a prompt and liberal spirit in making provision for the wants of the library. An excellent lot of land was purchased during the year 1853 on Boylston-street, to be the site of a building; a lot on Somerset-street, which had been previously bought, having been resold, as not being sufficiently near the centre of population. A special commission was formed to procure the plans for a suitable building, and to superintend its erection. After some delay, arising mainly from a doubt on the part of some portion of the city government as to the desirableness of this lot on Boylston-street in comparison with a suggested site on the lot of land lying west of the Common, this commission advertised for plans for a suitable building, in the summer of 1855. Twenty-four plans were sent in, many of which were highly creditable to the taste and skill of the designers; and, after a careful examination, that presented by Mr. C. K. Kirby was selected. A beginning of active operations was promptly made, and on the seventeenth of September last, the two hundred and twenty-fifth anniversary of the day on which the city of Boston originally received its present name, the corner-stone of the building was laid by the mayor, Dr. Smith, and an eloquent and appropriate address was delivered by Mr. R. C. Winthrop, president of the commission for the erection of the building. A portion of this address may here be appropriately quoted:—

“Who shall undertake to measure the importance or calculate the value of good reading, as an instrument in advancing the welfare and promoting the happiness of mankind! Even one good book, read by snatches, in the intervals of labor, or in the watches of the night,—what unspeakable comfort and aid has it not often imparted to the humblest, or, it may be, to the loftiest mind and heart!

“I speak not of the Bible,—which is an exception to all books, and which might almost be a substitute for all;—a library in itself, able alone to carry civilization and culture into every home where it is thoroughly and thankfully and thoughtfully read;—itself the corner-stone of all Christian literature forever!



"But, even among books of merely human composition and origin, and dealing with merely human and mortal relations and interests, — how many have there not been, and are there not still, — for a good book never dies, — of a power not only to afford amusement or instruction for an hour or a day, but to mould a whole character and marshal a whole life! How many of the mightiest, as well as of the humbler, intellects of the world's history have borne testimony to the influence of 'the precious life-blood of some master-spirit, embalmed and treasured up on purpose to a life beyond life!'

"Need I recall to you the example of our own Franklin, who tells us himself, in his charming little autobiography, that while indulging his passionate fondness for reading, as a child of twelve years old, he found, among the few books which his father could afford to own, 'a work of De Foe's, entitled an "Essay on Projects," from which, perhaps (says he), I derived impressions that have since influenced some of the principal events of my life?' Or, need I remind you how much of that clear, pure, transparent style, which distinguished him above almost all other American writers, or even English writers, of his own day or of any day, he attributed to the use which he had made of 'an odd volume of the Spectator, which fell into his hands' by the merest accident?

"Such were the instruments by which the great Bostonian pursued that system of self-culture which prepared him for his wonderful career as a Philosopher and a Patriot; — books, odd volumes, sometimes found by chance on the meagre shelves of the family book-case, — sometimes falling into his hands by less natural and accountable accidents, — sometimes borrowed from his fellow-apprentices, and read by stealth while they were sleeping. 'How often,' says he, 'has it happened to me to pass the night in reading by my bedside, when the book had been lent, and was to be returned the next morning, lest it might be missed or wanted!' And you all remember the practical testimony which he gave to his own sense of the value of reading, by setting on foot the very first Social Circulating Library known to the annals of the world.

"But I may not take up more of the time of this occasion in rhapsodies upon reading, or in illustrating or exemplifying the value of good books. I have said more than enough already to justify the remark, that, in establishing this free public library, we are but carrying forward another stage, and that a great stage, towards its ultimate consummation and perfection, that noble system of popular education which our fathers founded. It has originated in no mere design to furnish a resort for professed scholars, where they may pursue their studies, or prosecute their researches, historical or classical, scientific

or literary, — important as such an object might be. It is to be eminently a library for the people, — for the whole people."

On the day of the laying of the corner-stone of the library, a communication was addressed to Dr. Shurtleff, one of the trustees and a member of the building committee, by Mrs. Shepard, a native of Boston, enclosing a donation of one thousand dollars, to be expended in the immediate purchase of books; and about the same time a letter was received from Mr. Bates, expressing his intention of purchasing and presenting to the city a considerable number of volumes, in addition to his gift of fifty thousand dollars. The City Council expressed their sense of Mr. Bates' renewed liberality by an appropriate resolution, in which they requested Mr. Bates to sit for his bust in marble or bronze, in order that it might be placed in the library building.

The lamented death of the late Mr. Abbott Lawrence took place in the summer of 1855. In his will, dated January 27, 1855, he bequeathed the sum of ten thousand dollars for the use of the library, the income to be expended in the purchase of books.

At this time (April, 1856), there are above twenty-five thousand volumes in the library. The circulation is about three hundred and fifty per day, and there are over ten thousand accounts opened in the books. The rooms appropriated to the library are now four in number; two of which are in the Normal school-house, in Mason-street, and two in the Quincy school-house, in Tyler-street; the last, however, being very small, and used only as store-rooms. The building in Boylston-street is making rapid progress towards completion, and will be finished in the course of the summer of 1857. The plan, it is believed, includes the most recent improvements in the construction of public libraries. It will be completely fire-proof, being almost wholly constructed of stone, brick, and iron. A double outside wall will secure it from dampness, and it will be thoroughly warmed and ventilated. It will contain convenient rooms for readers, for the consultation of books, for the circulating department, and for the main collection; comprising accommodation for about two hundred and fifty thousand volumes. It will be so arranged as to include under one roof a library for consultation, and a library for circulation, so contrived as not to interfere with each other; and the privileges of both will be practically extended to every resident of Boston, qualified by taste and education to profit by their advantages.

The library is under the direction of a board of trustees, seven in number; one of whom is chosen from the aldermen, one from the common council, and five from the citizens at large. It is open every day for the delivery of books for home use from three to eight P. M.; and the reading-room is open from nine A. M. to half past nine P. M.

No. 5; or VOL. II. No. 1, 14.

## XVI. MANAGEMENT OF LIBRARIES.

Edward Edwards, Esq., now principal Librarian of the Manchester Free Library, and formerly connected with the British Museum in London, has in contemplation the publication at an early day of a Library Manual, which promises to be of great value to all collectors of books. Mr. Edwards has been engaged for years in gathering materials; and by correspondence and travel, as well as by studious research, he has amassed a rare amount of information upon that most important department of educational inquiry, the establishment and management of public libraries and museums. The interest felt in our country upon this subject is so great, that we present in detail a plan of Mr. Edwards' work. It will consist of two octavo volumes, entitled

MEMOIRS OF LIBRARIES; together with a Practical Hand-Book of Library Economy. by Edward Edwards.

### TABLE OF CONTENTS.

#### PART I.—HISTORY OF LIBRARIES.

- Chap. I. The Libraries of the Ancients.
- " II. The Monastic Libraries of the Middle Ages.
- " III. General View of the Origin and Growth of Libraries in Modern Europe.
- " IV. The Imperial Library at PARIS.
- " V. The Royal and Central Library at MUNICH.
- " VI. The Library of the British Museum, LONDON.
- " VII. The Imperial Library at ST. PETERSBURG.
- " VIII. The Royal Library at COPENHAGEN.
- " IX. The Royal Library at BERLIN.
- " X. The Imperial Library at VIENNA.
- " XI. The Royal Library at DRESDEN.
- " XII. The Public Libraries of Italy.
- " XIII. The University and Town Libraries of Germany.
- " XIV. The University and Town Libraries of France.
- " XV. The University, Collegiate, and Cathedral Libraries of Great Britain and Ireland.
- " XVI. The Town and Parochial Libraries of Great Britain and Ireland.
- " XVII. The Proprietary and Private Libraries of Great Britain and Ireland.
- " XVIII. The Libraries of the United States of America.

#### PART II.—COMPARATIVE STATISTICS OF LIBRARIES.

- Chap. I. Comparative provision of books publicly accessible in Great Britain and Ireland, and in the other principal countries of Europe.
- " II. Comparative provision of books publicly accessible in Great Britain and Ireland, and in the United States of America.
- " III. General view of the requirements of the United Kingdom in respect of Libraries freely accessible, and of the means afforded by the Public Libraries Act (Ewart's Act, 1855,) for their supply.

#### PART III.—ECONOMY OF LIBRARIES.

##### Book I. OF THE FORMATION OF LIBRARIES :—

- Chap. I. Of the collection of books by taxation, or copy-exaction from authors and publishers.
  - § i. *In foreign countries.*
  - § ii. *In the United Kingdom.*
- Chap. II. Of the collection of books by donation.
  - § i. *Of private gifts and bequests.*
  - § ii. *Of the distribution of works printed at the public charge.*
- Chap. III. Of the collection of books by international exchange.
- Chap. IV. Of the collection of books by purchase.
  - § i. *Of the choice of authors, and of editions.*

- § ii. *Of the use of statistics of circulation in the selection of books for public libraries.*
- § iii. *Of the methods of purchasing books.*
- § iv. *Of the price of books, and the causes which produce great fluctuations in their value.*
- § v. *Approximative estimates of the cost of libraries of various kinds.*
- § vi. *Of the formation of special collections of pamphlets.*

**Book II. OF THE CONSTRUCTION AND FURNISHING OF BUILDINGS FOR THE RECEPTION AND USE OF PUBLIC LIBRARIES.**

- Chap. I. Notices of some celebrated edifices of this kind—Sansovino's Library of St. Mark, at Venice—Michael Angelo's Laurentian Library, at Florence—Vatican Library, at Rome—Brera Library, at Milan—Bodleian Library at Oxford—Royal Library, at Paris—St. Genevieve's Library, at Paris—Ducal Library, at Wolfenbuettel—Radcliffe Library, at Oxford—University Library, at Cambridge—Library of Trinity College, at Cambridge—Imperial Library, at St. Petersburg—Royal Library, at Copenhagen—Royal Library, at Munich—British Museum Library,
- “ II. Of the designs and projects for a great public library, elicited by recent propositions for the removal of the Imperial Library at Paris.
- “ III. Of the principal structural requirements for the accommodation, extension, and efficient service of a public library.
- “ IV. Of the arrangements for lighting, warming, ventilating, and fire-proofing a public library.

**Book III. OF THE ARRANGEMENT AND PRESERVATION OF BOOKS IN PUBLIC LIBRARIES:**

- Chap. I. Of the local classification of printed books.
- “ II. Of the collation, stamping, and press-marking of books, and the means of preserving them,
- “ III. Of the various methods which have been employed to indicate and commemorate the ownership of books.
- “ IV. Of the classification and arrangement of MSS., Prints, and Maps.
- “ V. Of bookbinding:—
- § i. *Historical retrospect—Monastic bindings in ivory, metals, and wood—Carved, embossed, chased, and jewelled bindings—Bindings adorned with portraits, cameos, medallions, heraldic devices, and other ornaments—Embroidered bindings in velvet, silk, and damask—Tambour bindings—Stamped vellum, and leather bindings—Morocco bindings—Characteristic styles adopted in the libraries of Grolier, of De Thou, of Maioli, of Hollis, &c.*
  - § ii. *Notices of eminent binders, and of their peculiar styles.*
  - § iii. *Of the comparative durability of various kinds of binding—and of the binding of pamphlets, maps, and charts.*

**Book IV. OF CATALOGUES OF LIBRARIES:—**

- Chap. I. Of Catalogues generally.
- “ II. Of Inventories, or Registers of Accessions.
- “ III. Of Shelf or Press Catalogues.
- “ IV. Of Alphabetical Catalogues, according to the names of authors:
- § i. *Advantages and disadvantages of Alphabetical Catalogues—Difficulties arising from the large number of anonymous books—and of pseudonymous—and from the transformation of authors' names, by substitution of birth-place or epithet, by translation, by caprice, by fraud, or by change in the orthography of a language, &c.—Books without title-pages, and books with a plurality of title-pages—Books with false titles, and books with unintelligible titles—Books ascribed to those who never wrote them, and books disowned by their authors—Plagiarized books—Necessity of bibliographical research, in order to the production of a serviceable catalogue on any system.*
- Chap. IV.—Continued:—
- § ii. *Of cataloguing polyonymous works, and Collections on particular subjects—publications of Societies and Corporate bodies—laws, &c.*
  - § iii. *Of cross references from one form of entry to another.*
  - § iv. *Notices of some existing alphabetical catalogues:—Audiffrede's catalogue of the Casanat Library at Rome—Catalogues of the Bodleian Library at Oxford—of the British Museum Library, &c.*
  - § v. *Of indexes of matters to alphabetical catalogues.*
- Chap. V. Of Alphabetical Catalogues, according to the subject-matters (on the plan of Watt's *Bibliotheca Britannica*.)
- “ VI. Of Classed Catalogues:—
- § i. *Survey of the principal systems which have been proposed for the classification of human knowledge and of Libraries—System of Conrad Gerner (A. D. 1548)—of Trefter (1560)—of La Croix du Maine (1584)—of*

*Christophe de Savigny* (1587)—*of the Jesuit Cardoni* (1587)—*of Arias Montanus* (1598)—*of Lord Bacon* (1605) and his followers—*of Nauade* (1627)—*of Bouillaud* (1670) and his followers—*of Garnier* (1678)—*of Leibnitz* (1700?)—*of Prosper Marchand* (1708)—*of the Abbe Girard*—*of Fontanini* (1709)—*of Conyers Middleton* (1723)—*of Le Clerc de Montinot* (1760)—*of Denis* (1778)—*of Erach* (1793)—*of Daunou* (1800)—*of Camus* (1800)—*of Ameilhon* (1800)—*of Parent* (1801)—*of Barbier* (1806)—*of Laire* (1807)—*of Achard* (1807)—*of Code* (1807)—*of Olenin* (1808)—*of Masol* (1808)—*of Bentham* (1816)—*of Fortia d'Urban* (1819)—*of Coleridge* (1820?)—*of Ampere* (1825)—*of Merlin* (1840?)—*of Lord Lindsay* (1845)—*of M. J. M. Albert* (1847)—*of Schleiermacher* (1852.)—*Comparative merits of these systems.*

δ ii. *Of indexes to classed Catalogues.*

δ iii. *Notices of some existing Classed Catalogues.*

Chap. VII. *Of Special Catalogues* (of Incunabula—of books on vellum—of select collections on particular subjects—of collections of pamphlets, &c.)

" VIII. *Of writing titles for Catalogues, and preparing them for the press—Of the corrections of the press.*

" IX. *Of Catalogues of MSS., of Prints, and of Maps.*

Book V. *OF THE MANAGEMENT AND SERVICE OF PUBLIC READING ROOMS, AND OF LIBRARIES:*

Chap. I. *Of the provision of books of reference—of the regulations of public access.*

" II. *Of the service of Reading Rooms—Means of facilitating the quick supply of books, and of checking their accurate return and replacement—On the utility of preserving a register of all works supplied.*

" III. *Of the regulation of Lending Libraries.*

Book VI. *OF THE ADMINISTRATIVE ORGANIZATION OF A PUBLIC LIBRARY.*

Chap. I. *Of the qualifications, duties, and responsibilities of a public librarian.*

" II. *Of division of labor in the conservation and service of a library.*

" III. *Of the financial management and account-keeping of a library.*

#### APPENDIX.

Bibliographical and critical notices of pre-existing works on bibliothecal economy, and on the history of Libraries.

#### LIBRARIES IN EUROPE.

The 35th annual report of the New York Mercantile Library, recently printed, contains a letter from S. H. Grant, Esq., the excellent librarian of that institution, in regard to a tour in Europe, which he made last year, for the special purpose of examining the celebrated libraries of different capitals. Mr. Grant was admirably fitted to profit by such a journey, and the results of his inquiries can not fail to be of service in the important position which he holds in New York.

We make a few extracts from his letter.

#### LIVERPOOL FREE LIBRARY.

The Reference portion of the Liverpool Free Library is centrally situated, and contains 18,000 volumes, as also a Reading Room and a fine collection of maps. The two Lending Libraries connected with it, entitled respectively, those of the North and South District, are located in parts of the city quite removed from each other. They number about 4,000 volumes each, and consist of nearly the same works. Persons entitled to draw books must decide which of them they will make use of, and a ticket is given for that one only. The Reference Library is open to all who desire to consult it; but, in order to draw books from the others, a certificate of security is required, signed by two rate-payers. It was very gratifying to note the admirable system that prevails in each department, and the little liability to error that was manifest. As an evidence of this, I would mention that, out of 140,000 volumes circulated to October, 1855, only one had been lost to the library, and that was obtained upon a forged certificate. Many interesting particulars might be added, of the class of persons who make use of those libraries, and the character of works drawn by them. Some of these will be found in their Annual Reports, which, together with their Catalogues and the various blanks used by them, I take the opportunity of laying before you this evening.

Undoubtedly, one great source of attraction with these free libraries, is the Museum of Natural History, of Art, or of Useful Inventions, which is usually attached to them. As an instance of this, I would state that the number of visitors to the Salford Museum, during the year ending November, 1855, was 448,220, while the number of volumes issued to readers, was 115,457.

## EFFECTS OF GAS UPON BINDINGS.

In the Portico Library, I noticed some bindings in a very dilapidated condition, evidently not the result of mere wear; and, upon asking if this was the effect of having gas in the building, I was told it was. When in the British Museum, a few days later, the circumstance was mentioned to Mr. Panizzi, who seemed to concur in the cause assigned, and referred to a tour of investigation on this subject which he had made sometime previously, in company with Mr. Faraday, when they became convinced of such being the effects produced by burning gas among collections of books. Since then, however, I have been led to question whether this decay is not even more likely to arise from acids or sulphate of zinc being employed in staining or dressing the leather, than from the products of gas combustion, which, being merely carbonic acid gas and water, are comparatively innocuous.

## CIRCULATING LIBRARIES IN LONDON.

Public or Circulating Libraries, of a character like our own, are almost unknown in London. The Russell Institution, and the small collection under the management of the Young Men's Christian Association, though good of their kind, leave the great mass of the community without any other resources for the temporary use of books than such as are afforded by booksellers, of whom more than eighty let out works at rates varying from a penny per volume to a guinea per year. Prominent among these is Mudie's circulating library, located in the vicinity of the British Museum, which has advertised no less than three hundred copies of one work, and *twenty-seven hundred* copies of another, (Macaulay's England, vols. 3 and 4)! The proprietor is enabled to do this by getting special discounts on his purchases, and by selling surplus copies as soon as the circulation slackens, which often takes place very soon, and before the work has received any injury. The very fact that a new work, however expensive, can be readily procured here, invites subscribers not from the metropolis alone, but from all parts of England. A Free Library has been recently established in the suburb of Marylebone; but, when one was proposed for London last fall, it was voted against very decidedly by the working-men, who are unwilling to have any additions made to their "rates," even for such an object.

## BIBLIOTHEQUE ST. GENEVIEVE, IN PARIS.

This is emphatically a free library, and every reasonable facility seems to be afforded for rendering it available to students and readers. Conveniently arranged, well lighted by day, and having gas fixtures for evening hours, with a sufficient staff of sub-librarians to meet the wants of readers, it is thrown open to every one who can make use of it, and seemed to leave nothing to be desired but ample funds to procure whatever works might there be sought. One of the few restrictions imposed is, that novels shall not be read in the building; for, as it is located in the "Quartier Latin," and is comfortably warmed and lighted, it was found that students would spend their long winter evenings reading such literature.

## ROYAL LIBRARY, IN BERLIN.

The Royal Library at Berlin gave me more satisfactory information concerning the manner of conducting large institutions of this kind, than I had elsewhere obtained. And for this I feel indebted especially to the extreme courtesy of its superintendent, the learned historian and bibliographer, Dr. Pertz. The Catalogues, which are both alphabetical and analytical, are arranged with a minuteness which enabled me to ascertain, in a few moments, whether some American Educational Reports that I had with me were already in their collection. The general arrangement of the collection came under review; and as much time as could be given was devoted to looking into divisions, in which this library is especially rich.

## PUBLIC LIBRARIES IN EUROPE.

TABLE V.—PUBLIC LIBRARIES IN THE PRINCIPAL STATES, CAPITALS, AND UNIVERSITIES OF EUROPE.

COUNTRIES.	Total No. of Libraries.	No. of Vols. of Printed Books.	No. of Vols. of Manuscript.	PRINCIPAL LIBRARIES OF EUROPE.	Number of Volumes.
Great Britain .....	34	1,771,493	62,149	Paris, National Library ..	824,000
France .....	186	4,610,295	119,119	Munich, Royal Library ..	600,000
Prussia .....	53	2,040,450	15,417	Petersburg, Imperial Lib...	446,000
Russia .....	12	852,090	21,604	London, Brit. Museum Lib.	435,000
Austria .....	40	2,408,000	41,103	Copenhagen, Royal Library.	412,000
Anhalt .....	2	25,700	—	Berlin, Royal Library ....	410,000
Baden .....	5	404,300	3,170	Vienna, Imperial Library..	313,000
Bavaria .....	18	1,268,600	30,156	Dresden, Royal Library ..	300,000
Belgium .....	14	609,100	20,728	Madrid, National Library..	200,000
Bremen .....	2	36,000	—	Wolfenbuttel, Ducal Lib...	200,000
Brunswick .....	6	223,000	4,580	Stutgard, Royal Library ..	187,000
Cracow .....	2	52,000	2,210	Paris, Arsenal Library ....	180,000
Denmark .....	5	647,000	3,200	Milan, Brera .....	175,000
Frankfort-on-the-Maine	1	62,000	550	Paris, St. Geneviève .....	150,000
Hamburgh .....	6	200,367	5,000	Darmstadt, Grand Ducal ...	150,000
Hanover .....	5	492,000	5,743	Florence, Magliabecchian ..	150,000
Hesse .....	5	273,200	400	Naples, Royal .....	150,000
Hesse-Darmstadt .....	3	282,600	5,268	Brussels, Royal .....	133,500
Hildburghausen .....	1	12,000	—	Rome, Casanate .....	120,000
Holland .....	7	228,310	12,000	Hague, Royal .....	100,000
Lippe-Detmold .....	1	21,500	100	Paris, Mazarin .....	100,000
Lubeck .....	2	52,000	400	Rome, Vatican .....	100,000
Lucca .....	1	25,000	—	Parma, Ducal .....	100,000
Luxemburg .....	1	19,600	162	UNIVERSITY LIBRARIES.	
Mecklenburg .....	3	85,400	—	Göttingen, University Lib..	360,000
Mecklenburg-Strelitz ..	1	50,000	—	Breslau, University Library	250,000
Modena .....	1	90,000	3,000	Oxford, Bodleian Library..	220,000
Naples and Sicily .....	8	413,000	3,000	Tübingen, University Lib..	200,000
Nassau .....	1	50,000	—	Munich, University Library	200,000
Oldenburg .....	1	60,000	—	Heidelberg, University Lib.	200,000
Papal States .....	16	957,000	33,495	Cambridge, Public Library.	166,724
Parma .....	3	146,000	—	Bologna, University Library	150,000
Portugal .....	7	276,000	7,587	Prague, University Library	130,000
Reuss .....	1	5,000	—	Vienna, University Library	115,000
Rudolstadt .....	1	46,000	—	Leipsic, University Library	112,000
Sardinia and Piedmont.	11	297,000	4,500	Copenhagen, University Lib.	110,000
Saxe-Coburg-Gotha .....	5	247,000	5,000	Turin, University Library...	110,000
Saxe-Meiningen .....	1	32,000	—	Louvain, University Library	105,000
Saxe-Weimer .....	2	180,000	2,000	Dublin, Trinity College Lib.	104,239
Saxony .....	9	570,500	7,950	Upsal, University Library..	100,000
Spain .....	27	711,050	8,262	Erlangen, University Lib..	100,000
Sweden and Norway ..	8	353,000	9,300	Edinburgh, University Lib.	90,854
Switzerland .....	13	480,300	12,734	Public Libraries in Paris ...	
Tuscany .....	10	401,000	30,000	" in London .....	
Waldeck-Pyrmont .....	1	30,000	—	" in St. Petersburg.	
Württemberg .....	6	433,000	5,200		595,900

The above table is taken from Burritt's Year Book of the Nations, and is inserted in this place to arrest the attention of legislators and men of wealth to the amazing deficiencies of our cities and colleges in the facilities for the profound investigation of any subject of human learning which a great library affords.



## HINTS ON READING.

"I no sooner come into the Library, but I bolt the door to me, excluding Lust, Ambition, Avarice, and all such vices, whose nurse is Idleness, the mother of Ignorance and Melancholy. In the very lap of eternity, among so many divine souls, I take my seat with so lofty a spirit, and sweet content, that I pity all that know not this happiness."

[HEINSIUS, of Leyden, in D'Israeli's *Curiosities of Literature*.]

"Read not to contradict and confute, nor to believe and take for granted, nor find talk and discourse, but to weigh and consider."

[BACON'S *Essays—On Studies*. Harpers' ed. p. 179.]

### 1. DEFINITION OF READING.

Reading, in its true sense and use, is *study*—sometimes a laborious, sometimes an entertaining perusal of books—but always the *study of books*.—"Reading," says Dr. Watts, "is that *means or method of knowledge*, whereby we acquaint ourselves with what other men have published to the world, in their writings."—*Watts on the Improvement of the Mind*, p. 38.

### 2. OBJECTS OF READING.

"The question recurs, What is the proper object of Reading? what the end to be kept in view, in the choice and perusal of books? One great end, doubtless, is *Knowledge*. . . . One object of reading, then, is to acquire knowledge. But we must bear in mind that knowledge, in itself, is not so much an end as a means, and that we are always to keep in view its ulterior uses and applications. . . . Knowledge brings with it *duties* which are not to be neglected. It is a *talent or trust*; and to enable us to employ it aright, we should understand well the end for which God has given us capacities for acquiring it. On no subject are men more likely to err; and how grievous the error is, and in what ways it manifests itself, let Lord Bacon teach. 'But the greatest error,' says that great writer, 'of all the rest, is the mistaking or misplacing of the last or farthest end of knowledge; for men have entered into a desire of learning and knowledge, sometimes upon, &c., . . . seldom sincerely to give a true account of their gift of reason to the benefit and use of men, as if there were sought in knowledge a couch, &c., &c., and not a *rich store-house for the glory of the Creator and the relief of man's estate*.' Such, then, is the use of knowledge. It constitutes a rich store-house, whence we should draw materials for glorifying God, and improving man's estate. In other words knowledge is to be employed by us in doing good. . . . This remark leads us to notice another of the benefits to be derived from books, when judiciously selected and properly read. This is the *improvement of our intellectual powers and moral sentiments*. . . . So, again, in regard to taste. . . . What is true of intellect and taste, is not less true of our *moral sentiments*. . . . (Recapitulation.) *Why should we read?* Partly to procure immediate gratification, but principally,—1st, to acquire knowledge, both for its own sake, and for its uses: 2ndly, to improve the intellectual powers: 3dly, to refine taste: and 4thly, to strengthen the moral and religious sentiments."—*Professor Alonzo Potter, D. D. Advantages of Science, Harpers' Ed.*, pp. 14, 19, 20, 21, 23, 24, 31.

"In all our studies and pursuits of knowledge, let us remember that virtue and vice, sin and holiness, and the conformation of our hearts and lives to the duties of true religion and morality, are things of far more consequence than all the furniture of our understandings, and the richest treasures of mere speculative knowledge."—*Watts on the Mind*, p. 69.

### 3. GENERAL ADVANTAGES OF READING.

"These arts of reading and writing are of infinite advantage ; for by them we are made partakers of the sentiments, observations, reasonings and improvements of all the learned world, in the most remote nations, and in former ages, almost from the beginning of mankind. . . . The advantages (of reading) are such as these : 1. By reading, we acquaint ourselves, in a very extensive manner, with the affairs, actions, and thoughts of the living and the dead, in the most remote nations, and in most distant ages ; and that with as much ease, as though they lived in our own age and nation. By reading we may learn something from all parts of mankind. . . . 2. By reading, we learn not only the actions and the sentiments of distant nations and ages, but we transfer to ourselves the knowledge and improvements of the most learned men, the wisest and the best of mankind, when or wheresoever they lived. For though many books have been written by weak and injudicious persons, yet the most of those books, which have obtained great reputation in the world, are the products of great and wise men in their several ages and nations. . . . 3. When we read good authors, we learn the *best* sentiments, even of those wise and learned men. For they studied hard, and committed to writing their maturest thoughts, and the result of their long study and experience. . . . 4. It is another advantage of reading that we may review what we read, we may consult the page again and again, and meditate on it, at successive seasons, in our serene and retired hours, having the book always at hand."—*Watts*, pp. 38, 41, 42.

"Written records constitute the only authentic memorials of the past ; and, since those records have been multiplied by printing, and spread over the world, they are truly imperishable. Nor only so ; they are now the property of the whole race. . . . Now almost all minds experience their enlightening and quickening influence. There is hardly an individual whose knowledge is not enlarged by the use of books ; while, at the same time, multitudes are incited by them to add, by their own labors and discoveries, to the great sum of human attainments. Another advantage of the knowledge gained from books is, that . . . it is much of it arranged and systematized. Thus we are enabled to see the dependence and connection of different truths ; and, what is more important, we learn to study *principles and laws*, instead of losing ourselves amid a multitude of incongruous facts. . . . How important, then, that every one, who would cultivate in his own mind the true spirit of investigation, or who would acquire that power which results from knowledge, how important that he should become familiar with *such books* as illustrate the nature, and embody the fruits of this system of inquiry."—*Potter : Advantages of Science*, pp. 16, 17.

### 4. IMPORTANCE OF READING, TO THE BUSINESS MAN, THE MECHANIC AND THE MANUFACTURER.

"Let me invite your attention to the consideration of the probable beneficial effect of the diffusion of scientific knowledge, among those practically and habitually employed in the mechanic and manufacturing arts, and it is likely to operate upon the improvement and advancement of the arts and sciences themselves. . . . Perhaps there is no better definition of science, than that it is knowledge acquired by the thoughts and the experience of many, and so

methodically arranged, as to be comprehended by any one. . . . The theory of science, then, is the exposition of known facts, arranged in classes, and expressed in words. . . . The advantages of experience and observation on a large scale, are by no means peculiar to mechanical ingenuity. . . . It is peculiarly true with regard to the chemistry of the arts. . . . In fact, the very foundation of modern chemistry, or, at least, of that branch of it termed pneumatic chemistry, was laid in a brewery. There had been no lack of ingenuity, no sparing of labor or expense, no flagging of zeal or curiosity among the old chemists. But the larger and more striking field of observation and combination afforded to Dr. Priestley, by the vats and gases of his neighbor, the brewer, opened a new world to inquiry. From the thick vapors of the brew-house, like one of the gigantic genii of oriental romance, arose that mighty science which has given to enlightened art a more than magical sway. . . . It is wonderful how the elements of the most precious knowledge are spread around us; how to the curious and instructed observer every thing is full and rich with the means of benefiting the human race. The slightest accession to our knowledge of nature, or our command over it, is sure, ultimately, to connect itself with some other truth, or to unfold its own powers or relations, and thus to lead on to some practical benefit, which the boldest conjecture could never have anticipated. The ignorant and the idle, suffer all such opportunities to pass by them as the vagrant breeze. But such will surely not be the case with industrious men, prepared by general science to turn those occasions to the best account. . . . I argue from experience. . . . Take, for instance, the history of one of the most recent and precious gifts which chemistry has made to medicine. A few years ago, a soap manufacturer of Paris, M. Courtois, remarked that the residuum of his lye, when exhausted of the alkali, produced a corrosion of his copper boilers, which struck him as deserving special inquiry. 'He put it,' says Mr. Herschel, 'into the hands of a scientific chemist for analysis, and the result was, the discovery of one of the most singular and important chemical elements, *iodine*. . . . Curiosity was excited; the origin of the new substance was traced to the sea-plants, from whose ashes the principal ingredient of soap is obtained, and ultimately to the sea-water itself. It was thence hunted through nature, discovered in salt mines and springs, and pursued into all bodies which have a marine origin; among the *rest into sponge*. A medical practitioner, (Dr. Coindet, a Swiss physician,) then called to mind a reputed remedy for the cure of one of the most grievous and unsightly disorders to which the human species is subject—the *goitre*. . . . and which was said to have been originally cured by the ashes of burned sponge. Led by this indication, he tried the effect of iodine on that complaint, and the result established the extraordinary fact, that this substance, taken as a medicine, acts with the utmost promptitude and energy on goitre, dissipating the largest and most inveterate in a short time, and acting (of course with occasional failures, like all other medicines,) as a specific or natural antagonist against that odious deformity.' Now consider what a map of human misery, for a long series of generations to come, has been relieved or removed by this discovery, arising from the single circumstance of a *Parisian soap manufacturer being an observing man, who understood the uses and nature of chemical analysis*. . . . Let us cross the channel to Great Britain, for some farther examples. . . . The *Telescope*, in its earliest stages of invention had received all the improvement that could then be furnished by the genius of the great Galileo, the father of modern science, and by the superhuman philosophical sagacity of Sir Isaac Newton, as well as of their disciples and followers, the most learned and ingenious men of Europe, such as the English Hooke, the Dutch Huygens, and the German Euler.—The product of these labors was admirable proof of the power of human invention; yet it was accompanied with imperfections, especially in the *refracting telescope*, that seemed insuperable. . . . The removal of this defect was reserved for *John Dollond*, originally a silk weaver, and afterward an optician and instrument-maker, of London. Half a century after Newton's exper-

ments, Dollond conceived the idea, that the refractive powers of different kinds of glass might be made to correct each other. In this he completely succeeded. Had he not *been familiar with the science* of Newton, Dollond would never have attempted this discovery; had he not also been a *practical mechanic*, it is hardly probable that he would have succeeded. The incidental mention of the ultimate advantages derived by the art of navigation from the labors of Dollond, suggests to my mind another illustration, and recalls the name of *John Smeaton*. He was by regular trade, a philosophical instrument-maker, but his active mind had taken a broad range of rational curiosity and employment, embracing almost every thing in science or art, that could throw light on mechanical contrivance. His inventions of this sort were very numerous and ingenious, but his solid fame rests chiefly upon the erection of the Eddystone lighthouse. . . . . There are few narratives of more intense interest or varied instruction than his own account of this great work. . . . . The names and lives of our own distinguished benefactors of mankind—Franklin, and Rittenhouse, and Whitney, and Fulton, and Perkins—press upon my memory. . . . . The history of Printing offers another tempting field of collateral illustration. . . . . I might tell of the Italian Aldus and his sons, of Henry Stephens, of Paris, and his learned family, of the Dutch Elgivirs, the English Bouyer, the Scotch Foulis and Duncan, and surely could not forget the noblest name of them all, our own Franklin. . . . . I must also reluctantly refrain from detailing the studies, inventions and improvements of the potter, *Josiah Wedgwood*. . . . . But from among the names which thus crowd upon me, let me adduce one more bright example. . . . . It was about this season of the year, just seventy years ago, that the instrument-maker employed by the University of Glasgow, received from the professor of natural philosophy in that ancient seminary of learning, a broken model of the steam-engine, as then used, to be put in order for his lectures. . . . . An ordinary workman, after admiring the ingenuity of this imperfect machine, would have made the necessary repairs, sent it back to the lecture-room, and the world would have gone on as usual. But it had fallen into the hands of *James Watt*, a young mechanic, of singular and various inventive sagacity, and of most patient and persevering ingenuity, who, *in addition to much miscellaneous information, and some mathematical acquirement, had been led by a liberal curiosity to master all that was then known of chemistry, and theoretical natural philosophy in its broadest sense.* . . . . . Look around for yourselves—on our rivers and lakes—on the manufactures of Europe and America, piled up in our shops—on the railroads which traverse, or are just about to traverse, our continent—on the wealth, the power, the rapid interchange of commerce and intelligence produced by the modern steam-engine, and then let me remind you, that all this is the fruit of the solitary labors and studies of a Glasgow work-shop; directed by an active, vigorous, daring, but most patient and persevering mind, *which knew how to use well the knowledge that other wise or ingenious men had previously reasoned out or discovered.* . . . . . I have not yet touched upon the influence of knowledge, upon the operative and producing classes themselves, in improving the character, raising the thoughts, awakening sleeping talent, and thus qualifying this great and valuable body, for the able, just, right, wise and honorable discharge of all the duties of men, of citizens, of freemen, of patriots. This is alone, and in itself, a theme full of interest—full of excitement. . . . Such were Saratoga's victors, such the brave men whose blood earned our liberties. Foremost among them was *the blacksmith of Rhode Island, Nathaniel Greene*; he whom Hamilton, while he honored Washington as 'the first man of the country,' did not hesitate to style 'the first soldier of the Revolution. . . . . There also was the *book-binder, Knox*, and from among the *mechanics* of New York, came forth our *Willet*, 'the bravest of the brave.' . . . . Abroad, our interests were watched over, and our national dignity represented, by the *printer, Franklin*. . . . . Foremost in our councils at home, and enrolled among the immortal names of the committee of five, who prepared and reported the Declaration of Independence, was

the *shoemaker, Roger Sherman*, a man self-educated and self-raised. . . . . Here were other names like these which I cannot now pause to recapitulate. . . . . Still I cannot forbear from paying a passing tribute to the memory of a townsman and a friend. . . . . The courage, seamanship, and ability of *Commodore Chauncey*, would have been exerted in vain, had they not been seconded by the skill, the enterprise, the science, the power of combination, and the ready and inexhaustible resources of his *ship-builder, Henry Eckford*. . . . . The ardor for improvement, the thirst for knowledge, manifested by the mechanics of this and others of our cities, are gratifying indeed. . . . . But they derive a tenfold interest and value from the greater results which they foretell, and the more glorious future they appear to usher in." *Gulian C. Verplanck's Discourse before the Mechanics' Institute of New York, Nov. 27, 1833*—passim.

#### 5. CHOICE OF BOOKS. x o

"The world is full of books; but there are multitudes which are so ill-written, that they were never worthy any man's reading; and there are thousands more which may be good in their kind, but are worth nothing, when the month, or year, or occasion is past, for which they were written. Others may be valuable in themselves for some special purpose, or in some peculiar science, but are not fit to be perused by any but those who are engaged in that particular science or business. . . . . It is of vast advantage or improvement of knowledge and saving time, for a young man to have the most proper books for his reading recommended by a judicious friend. . . . . There is yet another sort of books, (in addition to *books of science and complete treatises* on subjects, which are first recommended,) of which it is proper I should say something while I am treating on this subject; and these are *history, poesy, travels, books of diversion or amusement*; among which we may reckon also, little common pamphlets, newspapers, or such like. For many of these, I confess, *once reading may be sufficient*, where there is a tolerably good memory. . . . . Still let it be remembered, that where the historical narrative is of considerable moment, where the poesy, oratory, &c., shine with some degrees of perfection and glory, a single reading is neither sufficient to satisfy a mind, that has a true taste for this sort of writing; nor can we make the fullest and best improvement of them, without proper reviews, and that in our retirement as well as in company. . . . . Among these writings of the latter kind, we may justly reckon *short miscellaneous essays* on all manner of subjects; such as the *Occasional Papers*, the *Tattlers*, the *Spectators*, and some other books, that have been compiled out of the weekly or daily products of the press. . . . . Among other books, which are proper and requisite, in order to improve our knowledge in general, or our acquaintance with any particular science, it is necessary that we should be furnished with *vocabularies and dictionaries of several sorts*, namely, of *common words, idioms, and phrases*, in order to explain their sense; of *technical words, or the terms of art*, to show their use in arts and sciences; of *names of men, countries, towns, rivers, &c.*, which are called *historical and geographical dictionaries, &c.* These are to be consulted and used upon every occasion. . . . . If such books are not at hand, you must supply the want of them, as well as you can, by consulting such as can inform you." *Watts on the Mind*, pp. 59, 69, 71, 72.

"A wise and good man was accustomed, in his devotion, to thank God for books. He did well; *good books, rightly used*, are among our greatest blessings. . . . . Books introduce us to the noblest minds of our race, and permit us to commune intimately with them, even at those privileged hours, when they obtain their brightest visions of truth, and pour forth their loftiest or most touching eloquence. It must be remembered, however, that *all books are not good books*, and that *even good books may be so read, as to fail of their appropriate ends*. Milton has said, that 'a wise man can sooner gather gold out of

the drossiest volume, than a fool, wisdom out of Scripture.' It is certain that the effect of reading depends nearly as much on the disposition and taste of the reader, as on the character of the writer. Hence the great importance of considering not only *what* we read, but also in *what way*, and for *what ends*. . . . . A love of books can be acquired only by those who find pleasure in using them; and hence, whoever would cultivate in himself or others this most desirable taste, *should select, especially at first*, such works as can be read with sustained and quickened attention. But let it not be forgotten, that *such books*, if read *only to amuse* and entertain, must, if *good*, fail of much of their effect, while, if *bad*, their influence will be deplorable. . . . . By degrading them into instruments of momentary pleasure, we shall lose sight of their true worth, and learn to confound them with that herd of books, usually known as 'light reading'; books which seem to have been written in order to be *once read*, and then *forever forgotten*. Soon, too, we shall disrelish all books that contain any serious matter, and be content only with those of the most frivolous and exciting kind. These last will claim every hour that can be allotted to *reading*; and happy shall we be, if they do not *steal hours that ought to have been given to study*. . . . . To this danger we are peculiarly exposed in our own day. . . . . We should choose books that will exercise the faculty of close and continuous *attention*, and as we advance, we should subject it to the necessity of more strenuous and protracted effort. They should be books, too, which require us to *think*; which sometimes incline us to close our volume, that we may review the arguments and statements of the writer, and test them by the rules of sound reasoning; books, which call us to analyze what is complicated, to arrest what is fugitive, and trace out what is subtle; which suggest new subjects for reflection and inquiry, and gradually lead us to appreciate and enjoy the pleasure that results from the mere exercise of our intellectual powers. . . . . So, again, in regard to *taste*. All men have been endowed, though in different degrees, with a relish for what is beautiful or perfect of its kind. . . . . Hence, books, as well as companions, should be *selected with reference to the cultivation*, not only of the understanding, but also of the taste. And in this respect we are exposed to much danger. Not a few of the works of our day (especially those of a fictitious and periodical character—works, too, which command enthusiastic applause,) are directly calculated to encourage a false taste in literature, as well as a vicious tone in manners and morals. . . . . What is true of intellect and taste is not less true of our *moral sentiments*. . . . . And, as our moral judgments, moreover, are insensibly but powerfully affected by companions, so are they by books—companions, against whom we are apt to be least on our guard, whose instructions we are disposed to receive with a too implicit faith, and whose society we enjoy at those seasons of relaxation, when the heart is most open to influence. It is nearly an axiom, that people will not be better than the books they read. . . . . It is important that all books be proscribed, which inculcate indifference to moral distinctions; which tend, however indirectly, or insidiously, to excite our evil passions; which exhibit the guilty and profligate as objects of sympathy and admiration; or which serve to lessen, in the least, our reverence for principle, or our hatred of a mean and time-serving policy. . . . . In thus explaining the objects which ought to be kept in view in reading, I have, in effect, furnished rules for judging of books, of their character and value. If *one great end of reading* be to enlarge our knowledge, then we should, for the most part, read no books which do not *furnish useful information*. I say, *for the most part*, because we *sometimes* read rather to improve taste, quicken and cultivate imagination, or discipline reason, rather than to gain knowledge. Hence *another rule*, by which we may try a book, is *the effect it has upon the understanding*. Does it require thought, and excite to reflection? Does it deal in *sound reasoning* only, avoiding all specious fallacies, and making no appeals to mere prejudice or passion? Does it cultivate in our minds a disinterested love of *truth*? . . . . . If, on the other hand, it be a *work of imagination or taste*, it should be tried by *its influence on the sensitive part of our nature*. If it pre-



sent us with images of beauty and simplicity, enable us to view the works of nature and art, with a keener and more discriminating relish, inspire us with a love for the perfect, and, above all, if it strengthen and animate our noble sentiments of virtue, it merits frequent and careful perusal. But, *if otherwise, &c.*, I need not add, that it is a book to be reprobated and avoided. . . . .

WHAT SHOULD WE READ? Only good books; which Milton describes as 'the precious life-blood of master-spirits, embalmed and treasured up on purpose to a life beyond life.' To know whether a book be good, consider, 1st, whether it adds to our sum of knowledge: 2ndly, whether it induces thought, and exercises reason: 3dly, whether it improves taste: and 4thly, whether it strengthens conscience.'—*Dr. Potter: Advantages of Science*, pp. 9—12, 22—27, 31.

"Read *always the best and most recent book on the subject which you wish to investigate.* 'You are to remember,' says Pliny the younger, 'that the most approved authors of each sort are to be carefully chosen, for, as it has been well observed, though we should *read much*, we should not *read many* authors.'"—*Dr. Potter: Handbook for Readers*, p. 18.

#### 6. SYSTEMATIC READING; OR READING IN COURSES, OR BY SUBJECTS.

"Some prejudice, against what are called courses of study, has been justly provoked by the great number and variety of those which have been proposed from time to time. . . . . At the outset, *almost any course of reading* is better than the desultory and irregular habits which prevail so extensively. When once the student has acquired a taste for good books, and some just ideas of the object and uses of reading, he may be safely left to glean for himself, from the counsels of others, such hints and directions as are best adapted to his own case. . . . . Do not become so far enslaved by any system or course of study, as to think it may not be altered, when alteration would contribute to the healthy and improving action of the mind. . . . . Beware, on the other hand, of *frequent changes* in your *plan* of study. This is the besetting sin of young persons. 'No, take your course wisely, but firmly,' says Wirt, 'and having taken it, hold upon it with heroic resolution, and the Alps and Pyrenees will sink before you. The whole empire of learning will be at your feet, while those who set out with you, *but stopped to change their plans*, are yet employed in the very profitable business of changing their plans. Let your motto be, *Perseverando vinces*, (*by perseverance thou shalt conquer.*) Practice upon it, and you will be convinced of its value, by the distinguished eminence to which it will conduct you.' . . . . Study *subjects*, rather than books; therefore, compare *different authors* on the *same subjects*; the *statements* of authors, with information collected from *other sources*; and the conclusions drawn by a writer with the rules of sound logic. 'Learning,' says Feltham, 'falls far short of wisdom; nay, so far that you scarcely find a greater fool than is sometimes a mere scholar. . . . . 'I take care,' says one of the profoundest and most versatile scholars in England, as quoted by Mr. Warren, in his *Law Studies*, 'always to ascertain the value of what I look at, and if satisfied on that score, I most carefully stow it away. I pay, besides, frequent visits to my 'magazine,' and keep an inventory of at least every thing important, which I frequently compare with my stores. It is, however, the *systematic disposition and arrangement* I adopt, which lightens the labors of memory. I was by no means remarkable for memory, when young; on the contrary, I was considered rather defective on that score.' . . . . *Dare to be ignorant of many things.* 'In a celebrated satire, (*the Pursuits of Literature*) much read in my youth,' says Dr. Quincy, 'and which I myself read about twenty-five years ago, I remember one counsel there addressed to young men, but, in fact, of universal application. I call upon *them*, said the author, *to dare to be ignorant of many things*; a wise counsel and justly expressed. . . . . *A good scheme of study will soon show itself to be such by this one test*, that it will exclude as powerfully as it will appropriate; it will be a *system* of repulsion no less than of attrac-



tion; once thoroughly possessed and occupied by the deep and genial pleasures of one truly intellectual pursuit, you will be easy and indifferent to all others that had previously teased you with transient excitement."—*Dr. Potter: Handbook for Readers*, pp. 15—18, 20, 21.

"In learning any new thing, there should be as little as possible first proposed to the mind at once. That being understood, and *fully mastered*, proceed to the *next* adjoining part, yet unknown. This is a slow, but safe and sure way to arrive at knowledge. The mind will be able, in this manner, to cope with great difficulties, and prevail over them, with amazing and happy success. . . . Engage not the mind in the intense pursuit of too many things at once; especially, such as have no relation to one another. This will be ready to distract the understanding, and hinder it from attaining *perfection in any one subject of study*. . . . In the pursuit of every valuable subject of knowledge, keep the end always in your eye, and be not diverted from it by every petty trifle you meet with in the way. . . . Be not satisfied with a mere knowledge of the best *authors*, that treat of any subject, instead of acquainting yourselves *thoroughly with the subject itself*."—*Dr. Watts on the Mind*, pp. 131—133, 72.

#### 7. READING CONJOINED WITH THINKING.

"Deal freely with every author you read; and yield up your assent only to evidence and just reasoning on the subject. . . . In the compositions of men, remember, you are a man as well as they; and it is not their reason, but your own, that is given to guide you, when you arrive at years of discretion. . . . Enter into the sense and argument of the authors you read; examine all their proofs, and then judge of the truth or falsehood of their opinion. . . . You will acquire by degrees a habit of judging justly, and of reasoning well, in imitation of the good writer, whose works you peruse. . . . Never apply yourself to read any human author, with a determination beforehand either for or against him; nor with a settled resolution to believe or disbelieve, to confirm or to oppose whatsoever he says; but always read with design to lay your mind open to truth, and to embrace it, as well as to reject every falsehood, though it appears under ever so fair a disguise. . . . Never let an unknown word pass in your reading, without seeking for its meaning. . . . And, indeed, how many volumes soever of learning a man possesses, he is still deplorably poor in his understanding, till he has made these several parts of learning his own property, by reasoning, by judging for himself, and remembering what he has read."—*Dr. Watts on the Mind*, pp. 61, 62, 66, 67, 72, 73.

"Says Locke, 'Reading furnishes the mind only with materials of knowledge; it is *thinking* that makes what we read *ours*.' . . . Says Dugald Stewart, 'nothing, in truth, has such a tendency to *weaken*, not only the powers of invention, but the intellectual powers in general, as a habit of *extensive and various reading without reflection*.' . . . Accustom yourself to refer whatever you read to the general head to which it belongs, and trace it, *if a fact*, to the *principle* it involves or illustrates; *if a principle*, to the *facts* which it produces or explains."—*Dr. Potter: Handbook for Readers*, pp. 16, 17, 19.

"Reading, to be useful, should be combined with reflection. Books can afford but little improvement to those who do not think as well as read. . . . Thus we see the great necessity of reading with deliberation; and may I not add, that in this respect, *laboring people*, and those whose pursuits give to them almost constant engagement, have advantages which they are not apt to appreciate. By reading at intervals, some portion of a good book, and then carrying the matter with them to their places of business, as a subject for thought and conversation, they will soon discover that the subject grows upon them in interest, that their views insensibly become clearer and more enlarged, and that useful reflections, not suggested by the author, rise before their minds. And thus it is, that men of active pursuits are more apt, as all expe

*rience testifies, to accumulate useful knowledge, than those whose lives are passed in leisure and in the midst of books. . . . Let me advise, then, that books be read deliberately.* The old maxim, that 'if a thing be worth doing at all, it is worth doing well,' is peculiarly applicable to reading. A book run over hastily, is rarely understood; if not understood, it is not remembered; and if not remembered, the time spent in reading it is lost. . . . By deep and diligent meditation, we (should) acquire something which may truly be called our own; for, as Milton says:—who reads

'Incessantly, and to his reading brings not  
A spirit and judgment equal or superior,  
Uncertain and unsettled still remains,  
Deep versed in books, but shallow in himself.'"

*Dr. Potter: Advantages of Science, pp. 17, 18, 27, 30.*

### 8. SOCIAL OR CLASS READING.

'If three or four persons agree to read the same book, and each brings his own remarks upon it, at some set hours appointed for conversation, and they communicate, mutually, their sentiments on the subjects, and debate about it in a friendly manner, the practice will render the reading of any author more abundantly beneficial to every one of them. . . . If several persons engaged in the same study, take into their hands distinct treatises on one subject, and appoint a season of communication once a week, they may inform each other in a brief manner, concerning the sense, sentiments and method of those several authors, and thereby promote each other's improvement, &c. . . . Talking over the things which you have read to your companions, on the first proper opportunity, is a most useful manner of review or repetition, in order to fix them upon the mind. Teach them to your younger friends, in order to establish your own knowledge, while you communicate it to them.'—*Dr. Watts on the Mind, pp. 60, 61, 178.*

"Company and conversation," says Feltham, 'are the best instructors for a noble nature.' 'An engagement and combating of wits,' says Erasmus, 'does, in an extraordinary manner, both show the strength of geniuses, rouses them and augments them. If you are in doubt of any thing, do not be ashamed to ask, or, if you have committed an error, be corrected.'—*Dr. Potter: Handbook for Readers, p. 19.*

"Some books should be read in company with others, especially with our family. We never relish a good book so highly as when we read it with a friend of congenial tastes. . . . And in this plan of social reading, what friends so proper as those of our household! What employment more appropriate for the domestic circle, than one which causes the minds of all to move in unison, thus strengthening the ties of mutual affection, and causing us to associate with home, the remembrance of our intellectual pleasures! . . . It will not be easy to preserve the good old practice of collecting our families around the cheerful fire, and teaching them to relish early the home-bred delights of affection, and of a common intercourse with those best and most improving visitors, good books." *Dr. Potter: Advantages of Science, pp. 27, 29.*

### 9. RE-READING OR REVIEWING.

"A frequent review and careful repetition of the things we would learn, and an abridgment of them in a narrow compass, has a great influence to fix them in the memory. . . . Repetition is so very useful a practice, that Winemon, even from his youth to his old age, never read a book without making some small points, dashes, or hooks in the margin, to mark what parts of the discourse were proper for review; and when he came to the end of a section or chapter, he always shut his book, and recollected all the sentiments or expres-

sions he had marked, so that he could give a tolerable analysis and abstract of every treatise he had read, just after he had finished it. Hence he became so well furnished with a rich variety of knowledge."—*Dr. Watts on the Mind*, p. 177.

"Strive, by frequent reviews, to keep your knowledge always at command. 'What booteth,' says an old writer, 'to read much, which is a weariness to the flesh; to meditate often, which is a burden to the mind; to learn daily, with increase of knowledge, when he is to seek for what he hath learned, and perhaps then, especially, when he hath most need thereof? Without this, (reviewing) our studies are but lost labor.'"—*Dr. Potter: Handbook for Readers*, p. 20.

"I would recommend, that when we become acquainted with a truly good book, we read it often. Cecil tells us that he had a 'shelf for tried books; books, which he could never open without being incited to reflection, and enriched by some new hint or principle. It should be so with all of us. A few books properly selected and faithfully read, would suffice to yield us more, both of pleasure and profit, than any number, however great, taken at random, and read, as they usually are, in a hurried and unreflecting manner. A book, moreover, which deserves the praise of being good, has cost its author efforts which cannot be appreciated at a single reading.'"—*Dr. Potter: Advantages of Science*, p. 29.

#### 10. READING CONNECTED WITH WRITING.

"For want of retiring and writing, many a learned man has lost several useful meditations of his own, and could never recall them. . . . If a book has no index nor good table of contents, it is very useful to make one as you are reading it. . . . It is sufficient in your index, to take notice only of those parts of the book which are new to you, or which you think well written, and well worthy of your remembrance or review. Shall I be so free as to assure my younger friends, from my own experience, that these methods of reading will cost some pains in the first years of your study, and especially in the first authors, which you peruse in any science, or on any particular subject; but the profit will richly compensate the pains. And in the following years of life, after you have read a few valuable books on any special subject in this manner, it will be very easy to read others of the same kind; because you will not usually find very much new matter in them, which you have not already examined. If the writer be remarkable for any peculiar excellencies or defects in his style or manner of writing, make just observations upon this also; and whatever ornaments you find there, or whatever blemishes occur in the language or manner of the writer, you may make just remarks upon them. And remember, that one book, read over in this manner, with all this laborious meditation, will tend more to enrich your understanding, than skimming over the surface of twenty. . . . It is useful to note down matters of doubt and inquiry, and take the first opportunity to get them resolved either by persons or books. . . . Lawyers and Divines write down short notes or hints of the principal heads of what they desire to commit to memory, in order to preach or plead. . . . The art of *short hand* is of excellent use for this, as well as other purposes. . . . Those who scarcely ever take a pen in their hands to write short notes or hints of what they are to learn, need a double degree of power to retain or recollect what they read or hear."—*Dr. Watts on the Mind*, pp. 42, 64, 65, 72, 178.

"Nor is it merely to the philosopher, who wishes to distinguish himself by his discoveries, that writing affords an useful instrument of study. Important assistance may be derived from it by all those who wish to impress on their minds the investigations which occur to them in the course of their reading."—*Dugald Stuart: Philos. of the Mind*, Vol. 1, p. 312.

"Seek opportunities to write and converse on subjects about which you

read. '*Reading*,' says Bacon, 'maketh a full man, conference, a ready man, and writing, an exact man.'—*Dr. Potter: Hand Book, &c.*, p. 19.

"I add one more suggestion in the words of another. Young persons especially, will pardon the suggestion, that in no way, perhaps, can their store of applicable knowledge be more certainly, though at first almost imperceptibly, increased, than by *habitually reading with a pen in the hand*. There is much good sense in these doggerel verses, for which we are indebted to no ordinary thinker."

"In reading authors, when you find  
Bright passages that strike your mind,  
And which, perhaps, you may have reason  
To think on at another season,  
Be not contented with the sight,  
But take them down in black and white;  
Such a respect is wisely shown,  
As makes another's sense one's own."

*Dr. Potter: Advantages of Science*, p. 30.

# 11. METHOD OF READING—GENERAL HINTS AND DIRECTIONS.

"*Books of importance* of any kind, and especially *complete treatises* on any subject, should be *first* read in a *more general* and cursory manner, to learn a little what the treatise promises, and what you may expect from the writer's manner and skill. And for this end, I would advise always, that the *preface* be read, and a survey taken of the *table of contents*, if there be one, before this first survey of the book. By this means, you will not only be better fitted to give the book the first reading, but you will be much assisted in your second perusal, which should be done with greater attention and deliberation; and you will learn with more ease and readiness what the author pretends to teach. In your reading, mark what is new or unknown to you before; and review those chapters, pages, or paragraphs. . . . Other things, also, of the like nature may be usefully practiced with regard to the authors which you read. If the method of a book be irregular, reduce it into form by a little analysis of your own, or by hints in the margin; if those things are heaped together which should be separated, you may wisely distinguish and divide them. If several things relating to the same subject are scattered up and down separately through the treatise, you may bring them all to one view, by references; or if the matter of a book be really valuable and deserving, you may throw it into a better method, reduce it to a more logical scheme, or abridge it into a lesser form. All these practices will have a tendency both to advance your skill in logic and method, to improve your judgment in general, and to give you a fuller survey of that subject in particular. When you have finished the treatise, with all your observations upon it, recollect and determine what real improvements you have made by reading that author. . . . Endeavor to apply every speculative study, as far as possible, to some practical use, that both yourself and others may be the better for it."—*Dr. Watts*, pp. 59, 64, 139.

"Always have some useful and pleasant book ready to take up in 'odd ends' of time. A good part of life will otherwise be wasted. 'There is,' says Wyttenbach, 'no business, no avocation whatever, which will not permit a man who has an inclination to give a little time every day to the studies of his youth. . . . Be not alarmed because so many books are recommended. They are not all to be read at once, nor in a short time. 'Some travelers,' says Bishop Hall, 'have more shrunk at the map than at the way; between both, how many stand still with their arms folded.' . . . Do not attempt to read much or fast. 'To call him well read, who reads many authors,' says Shaftsbury, 'is improper.' 'It does not matter,' says Seneca, 'how many, but how good books you have.' . . . Endeavor to find opportunities to use your knowledge, and apply it in practice. 'They proceed right well in all know-

ledge,' says Bacon, 'which do *couple* study with their practice, and do not first study altogether, and then practice altogether.'—*Dr. Potter: Hand Book, &c.*, pp. 16, 20.

"HOW SHOULD WE READ? First, thoughtfully and critically; secondly, in company with a friend or with our family; thirdly, repeatedly; fourthly, with pen in hand."—*Dr. Potter: Advantages of Science*, p. 31.

#### † 12. EFFECTS OF BOOKS—INFLUENCE OF AUTHORS.

"Wherefore should not the literary character be associated in utility or glory with the other professional classes of society? . . . . The commercial prosperity of a nation inspires no renovation in mankind; nor will its military power with their affection. There is an interchange of opinions, as well as of spices and specie, which induces nations to esteem each other; and there is a glorious succession of authors, as well as of seamen and soldiers, forever standing before the eyes of the universe. It is by our authors that foreigners have been taught to subdue their own prejudices. . . . . The small cities of Athens and of Florence will perpetually attest the influence of the literary character over other nations; the one received the tributes of the mistress of the universe, when the Romans sent their youth to be educated at Athens; while the other, at the revival of letters, beheld every polished European crowding to its little court. . . . . Those who govern a nation, cannot at the same time enlighten them;—authors stand between the governors and the governed. . . . . The single thought of a man of genius has sometimes changed the dispositions of a people, and even of an age. . . . . When Locke and Montesquieu appeared, the old systems of government were reviewed; the principles of legislation were developed; and many changes have succeeded, and are still to succeed. . . . . Observe the influence of authors in forming the character of men, where the solitary man of genius stamps his own on a people. The habits, the precepts, &c., of Dr. Franklin imprinted themselves on his Americans; while the elegant tastes of Sir William Jones could inspire the servants of a commercial corporation to open new and vast sources of knowledge. . . . . While Britain retains her awful situation among the nations of Europe, the 'Sylva' of Evelyn will endure with her triumphant oaks. In the third edition of that work, the heart of the patriot exults at its results. He tells Charles I. 'how many millions of timber trees, besides requisite others, have been propagated and planted at the *instigation, and by the sole direction of this work*. It was an author in his studious retreat, who, casting a prophetic eye on the age we live in, secured the late victories of our naval sovereignty. Inquire at the Admiralty how the fleets of Nelson have been constructed, and they can tell you that it was with the oaks which the genius of Evelyn planted. . . . . The same character existed in France, where De Lérès, in 1599, composed a work on the cultivation of mulberry trees, in reference to the art of raising silk-worms. He taught his fellow-citizens to convert a leaf into silk, and silk to become the representative of gold. . . . . A work in France, under the title of 'L'Ami des Hommes,' first spread there a general passion for agricultural pursuits; and although the national ardor carried all to excess, yet marshes were drained, and waste lands inclosed. . . . The commercial world owes to two retired philosophers, in the solitude of their study, Locke and Smith, those principles which dignify trade into a liberal pursuit, and connect it with the happiness of a people. . . . In the history of genius, there is no chronology, for to us everything it has done is present; and the earliest attempt is connected with the most recent. . . . . My learned and reflecting friend, (Sharon Turner, Esq.,) whose original researches have enriched our national history, has thus observed on the character of Wickliffe:—'To complete our idea of the importance of Wickliffe, it is only necessary to add, that as his writings made John Huss the Reformer of Bohemia, so the

writings of John Huss led Martin Luther to be the Reformer of Germany; so extensive and so incalculable are the consequences which sometimes follow from human actions.' Our historian has accompanied this, by giving the very feelings of Luther in early life on his first perusal of the works of John Huss; we see the spark of creation caught at the moment; a striking influence of the generation of character! Thus a father-spirit has many sons. . . . Such are the 'great lights of the world,' by whom the torch of knowledge has been successively seized, and transmitted from one to the other. . . . The torch of genius is perpetually transferred from hand to hand amidst this fleeting scene."

*D'Israeli's Literary Character, &c.; Alexandrian edition, pp. 444, 446.*

### 13. EARLY READING—FIRST STUDIES.

The serious caution and conscientious watchfulness to be exercised by parents and friends, in the selection of books for the young, and for those who have not been accustomed to reading, (on the minds of both which classes, vivid and permanent, and therefore most important impressions will necessarily be produced by the authors recommended,) are forcibly suggested by the illustrations which follow. The practical teachings of these examples make it proper that they should have the place of emphasis and chief effect, at the close of our collations.

"The first studies form an epoch in the history of genius, and unquestionably have sensibly influenced its productions. Often have the first impressions stamped a character on the mind adapted to receive one, as often the first step into life has determined its walk. . . . An early attachment to the works of Sir Thomas Browne produced in Johnson an excessive admiration of that Latinized English, which violated the native graces of the language. The first studies of Rembrandt affected his after labors; that peculiarity of shadow which marks all his pictures, originated in the circumstance of his father's mill receiving light from an aperture at the top, which habituated that artist afterwards to view all objects as if seen in that magical light. When Pope was a child, he found in his mother's closet a small library of mystical devotion; but it was not suspected till the fact was discovered, that the effusions of love and religion poured forth in his Eloisa, were derived from the seraphic raptures of those erotic mystics, who to the last retained a place in his library among the classical bards of antiquity. The accidental perusal of Quintus Curtius first made Boyle 'in love with other than pedantic books, and conjured up in him,' as he expresses it, 'an unsatisfied appetite of knowledge; so that he thought he owed more to Quintus Curtius than did Alexander.' From the perusal of Rycaut's folio of Turkish history in childhood, the noble and impassioned bard of our times, (Lord Byron,) retained those indelible impressions which gave life and motion to the 'Giaour, the Corsair and Alp.' A voyage to the country produced the scenery. . . . The influence of first studies, in the formation of the character of genius, is a moral phenomenon, which has not sufficiently attracted our notice. Dr. Franklin acquaints us that when young and wanting books, he accidentally found De Foe's 'Essay on Projects,' from which work impressions were derived which afterwards influenced some of the principal events of his life. . . . Such is the influence through life of those first unobserved impressions on the character of genius, which every author has not recorded." Such, too, in a greater or less degree, is the influence of first impressions on all minds. As the impressions can never be obliterated, the influence is to last forever.—See *D'Israeli's Literary Character, &c.; Alexandrian edition, p. 412.*

### 14. HINTS TO YOUNG LADIES AS TO WHAT TO READ AND HOW TO READ.

"THINK, my dear young friends, of the difference that is made in the character of a human being, simply by reading. Compare an Irish girl



who comes to this country at fifteen or sixteen, who has never been taught to read, with one of your own countrywomen in the humblest condition, of the same age, who *loves to read*, and who has read the books within her reach! . . . . . Books are the best property of the rich; think what they are to the poor who *really love them*. Compare the pampered boy, who cares for nothing so much as the indulgence of his sensual appetites, fretting over a table spread luxuriously, to a little fellow who, coming from the district-school, with his empty luncheon basket, snatches his Robinson Crusoe from the shelf; and, while his half frozen toes are warming, devours it, forgetful of every evil in life. . . . . It was but yesterday that I was at the humble home of a revolutionary soldier—a pensioner. I found his wife reading. Her eight children are dispersed south and west, and the old pair are left alone. They live far away from the village, and hardly put their heads out of doors from November till March. I involuntarily expressed my sympathy in their solitary condition. 'Oh,' replied the old lady most cheerily, 'I have company—books, the best of company!' . . . . . Think over your acquaintance, my young friends; I am sure you will find among them some old person, some invalid, some one cut off from social pleasures, to whom life would be a tedious burden, if it were not for books. . . . . If there is a real love of books, there is hardly a limit to be set to the knowledge that may be acquired from them without the aid of instructors, schools, or colleges. . . . A love for reading is with some merely the keen appetite of a superior mind. It would be felt under any circumstances whatever. But these are the few—the gifted. With most persons, the taste for reading must be cultivated. I believe there is no habit easier to form. Intelligent children, who live in reading families, with very few exceptions, are fond of reading as soon as they can read with facility. . . . . But, if you have been so unfortunate as not to acquire this habit of reading early, form it now for yourself. If you are not capable of selecting your own books, take the advice of some friend who knows the wants of your mind. Resolve to devote a portion of every day, for a year to come, to reading; and then, if you forget your resolution, it will not signify. The love of reading will, by that time, surely take the place of the duty, and do your mind vastly more good.

"It is difficult to give any general advice as to the selection of books, because so much depends on the character, opportunities, and leisure of the individual. . . . . It would be too painful for me to believe that there is one among you, to whom it is necessary to say, 'Regard the Bible as the first and best of books.' But I fear, my young friends, that you read the bible much less than you should. The multitude of religious books and tracts have, in some measure, superseded it. You are attracted by a story, and, to get a little pure gold you receive a great deal of dross. Many of these books, I know, derive their spirit from the Bible; many of them are useful and delightful; but let them take a subordinate place, and not encroach on the time you have to give to the reading of the bible. Do not be satisfied to drink from the stream which is imbued with much earthy material, when you can go to the pure fountain. . . . . You will find your pleasure in reading the bible incalculably increased, if you will read it not only with a spirit submissive to its Divine instruction, but with your mind awakened, and eager to understand it. There are Dictionaries of the Bible that explain what is obscure; there are books that will give you much light upon the history, customs, and modes of life among the Jews. There are others that explain the prophecies, and show you their fulfillment. . . . . If you can read but few books, be sure that the history of your own country is among them. Make yourself acquainted thoroughly with its institutions, its past and present condition, its extent, climate, laws, productions, and commerce. All these subjects come within our own sphere—they may be called domestic matters. Think you, if a woman was well instructed, well read on these topics, she would be as incapable of business, and therefore as dependent as she now is? . . . . . Next to the history and condition of your



own country, it is important that you acquaint yourselves with the history and condition of the countries whence your ancestors came. Then you will be able to compare your country with other countries, your own times with preceding ages. Thus informed, you will not fall into the common national vanity of fancying all knowledge, all virtue, and all progress, concentrated in the United States; nor into a worse error, a culpable ignorance of the advantages of your own country, and insensibility to them. . . . You will find well written and authentic travels a very improving and delightful kind of reading. You may lack money and opportunity to travel twenty miles from home, when for one or two dollars you may buy a book that will take you, with a well-instructed and all-observing companion, half over the world. Or, if you cannot expend the cost of the book, you may get it from a society, or district-library; or, borrow it from some kindly disposed person. . . . Good biographies are very improving books. The experience of others will often suggest models, advice, and reproof, that comes in the most inoffensive form. . . . Every well educated young person who has leisure for reading, should be well versed in English literature. . . . In the wide department of fictitious writing, let your consciences restrain and direct your inclination, and rectify your taste. . . . When our Saviour employed fiction in the parables of the prodigal son, and of the good Samaritan, it was, no doubt, to give to an important truth, a form that should be universally interesting and touching. Few will object to your reading such fictitious writings as do good to your hearts; and while you have such as Sir Walter Scott's, and Miss Edgeworth's, you have no excuse for reading the profligate and romantic novels of the last century, or the no less profligate and far more insidious romances of the present day.

"Next to 'what to read,' comes the great question 'how to read,' and I am not sure the last is not the weightier of the two. . . . No book will improve you which does not make you think; which does not make your own mind work. This is as certain as that the mill is not improved by the corn that passes through it, or that the purse is none the richer for the money that has been in it. . . . When you read, do not take for granted, believing, with ignorant credulity, whatever you see stated in a book. Remember an author is but one witness, and often a very fallible one. Pause in your reading, reflect, compare what the writer tells you with what you have learned from other sources on the subject, and, above all, use your own judgment independently, not presumptuously. . . . Knowing how short and precious time is, be more careful in the selection of your books than eager to read a great many. When you do read, read thoroughly and understandingly. . . . It is a good practice to talk about a book you have just read; not to display your knowledge, for this is pedantry or something worse; but to make your reading a social blessing by communicating liberally to those in your family circle, who may have less time and opportunity for reading than you have. You may often, too, by the superior knowledge of a friend, correct the false impressions you have received. Or, your friend may have read the same book, and then it is a delightful point of sympathy. . . . One word before I close this subject, as to the preservation of your books. If you love them, you will respect them, and unless you are incorrigibly slovenly and careless, you will not break off the covers, soil the leaves, and dog-ear the corners. . . . There is a common and offensive habit destructive to books, which we should not presume to caution any *educating* little girl against, if we had not seen it practiced by *educated* men. This is wetting the fingers to turn over the leaves. . . . Surely this should not be. When you borrow a book, put a cover on it before you read it. Use it with clean hands. Never lay it down on the face, nor where it is exposed to be knocked down by the next passer-by. Do not readily yield to any one's request to lend it again, but return it promptly and punctually. Perform the borrower's duty strictly, and Heaven bless you with liberal lenders."—Miss C. M. Sedgwick: *Means and Ends*.

## PLAN OF READING RECOMMENDED BY THOMAS S. GRIMKE.

1. Before I commenced an author, I made myself thoroughly master of the whole scheme of his work; (if a table of contents and chapters enabled me to do so,) of the character of his whole system, of the principles on which he had separated and arranged the parts, and of their relation to each other, and to the whole. 2. I then studied the author in the following manner. After reading the first sentence, I meditated on it, developing the author's thought, as well as I was able; and reducing the whole, as nearly as possible, to a single, distinct, concise expression. I then read the second sentence, and did the same: and next compared the two sentences together, meditating on them, and gathering out of them their substance. Thus I went through the paragraph, and then reflected on the whole, until I had reduced it to a single sentence, containing its essence. I then studied the next paragraph in like manner: and having finished it, I compared the two together, and gathered out of them their substance. The same plan was followed in the comparison of sections with sections, chapters with chapters, books with books, until the author was finished. This may appear, at first sight, an exceedingly tedious process; but any one, acquainted with the nature of the mind, knows the wonderful facility that would soon be acquired by a faithful, patient adherence to this mode of study, even through a single chapter. 3. A third rule was to pass nothing unexamined, nothing without reflection, whether in poetry or fiction, history or travels, politics, philosophy, or religion. Gratitude will not allow me to pass unnoticed the vast advantages derived from a humble, patient, thankful perusal of Watts' admirable book on the Improvement of the Mind. Nor ought I to omit the three rules of Professor Whitaker, of Cambridge, given to John Boyse, one of the eminent translators of the Bible in the time of James the 1st, to study chiefly standing or walking, never to study at a window, and not to go to bed, on any account, with cold feet.

It is an error to suppose that a course of study is confined to the period of youth, and that when a young man has left school or college, he has finished his education, and has nothing to study but his profession. In truth he has done little more than treasure up some of the important materials, and acquire the elementary habits and discipline, which are indispensable to the continued improvement of his mind. If he expects to be a scholar, not in the literary sense of the word, but in a far higher and nobler sense, as a Christian, patriot, philanthropist, and public servant, in the state or national councils, in literary, benevolent, and religious institutions; if he means to be distinguished for his sense of duty, and his spirit of usefulness, for just principles, enlarged views, dignified sentiments and liberal feelings, for sound thinking, and clear, close reasoning, let him be assured that he has done little more than lay the foundations, in the school, or even in the college, up to the age of twenty. He must make up his mind to be a devoted student, in spite of his professional engagements, for ten years at least; until he shall have been able to deepen and strengthen, and enlarge, and elevate his mind, so as to fit himself for solid, honorable, permanent usefulness. Let him remember, that the school only prepares the youth to enter on the course of study, appropriate to the young man: and that the college only enables the young man to enter on the course of study appropriate to the man. Manhood has its appropriate course of study, and the difference between men arises very much from their selection and pursuit of a right course of study. Many fine minds, capable of enlarged and durable improvement and usefulness, are lost every year to the community, in which their lot is cast, to the country they are bound to serve, to the cause of religion, humanity, justice and literature: because they have failed in this great duty, they have neglected the course of study, appropriate to manhood. And here let it be remarked, that the true student never considers how much he reads, but rather how little, and only what and how he reads.—Grimke on Science, Education, and Literature, p. p. 54-56.

## XXI. REFORMATORY EDUCATION.

In our last number, [No. 4, or Vol. I. p. 608-624,] we submitted some remarks on the efficacy of domestic and agricultural training, in the reformation of juvenile delinquents, as illustrated in the experience of the Agricultural Colony, or Farm School, at Mettray, in France. We continue the same subject, by giving from Miss Carpenter's *Reformatory Schools*, brief a notice of

### DUSSELTHAL ABBEY IN PRUSSIA.

A yet greater monument of the power of faith to overcome mountains of vice and ignorance exists in the Prussian dominions. Near Dusseldorf, on the right bank of the Rhine, rises Dusselthal Abbey. This is rather a refuge for wretched outcast children than a Penal Reformatory School, but it must not be passed over in our consideration of such, because it affords a striking instance of the power of Christian love, and family training, to overcome the greatest moral obstacles. The following short account of it is extracted from a small work entitled "*Illustrations of Faith.*"

"In 1816 Count Von der Recke, a member of a noble Prussian family, renounced the pursuits and pleasures belonging to his station in life, to devote his time, his fortune, and his talents, to the care and education of poor fatherless and destitute children, and of such grown up people as have sought his protection. His country had been recently devastated by war; numbers of unhappy children, deprived of their natural protectors, had become absolutely savage, living, when unable to gain any subsistence by begging or stealing, on wild herbs and roots. His father and he first received a few of these wretched little beings into their own home; then the father gave up a house for their use, and finally, by the sacrifice of his own fortune, and with the help of friends, he purchased an estate, which forms their present abode. Many were so confirmed in their wild habits, that any degree of restraint was intolerably irksome to them; they would run away and live in the woods, until compelled by hunger to return. Yet they were often successful in cases which would lead one to despair." The history of several is given in the narrative. "One of these, Clement, was supposed to be about 13 years of age; more depraved characters have been received into the asylum, but none so nearly resembling the lower animals in appetite and manners. It was not known where he came from, and he could give no account of his earlier life; his language was scarcely intelligible, and partook of the sounds of the four-footed companions of his infancy; among his most pleasurable recollections seemed to be his familiarity with the Westphalian swine, and his most frequent stories related to these favorite animals. While yet a child he had acted as swineherd to a peasant, and was sent to the fields to eat and sleep with the swine; but his unfeeling master, less attentive to the miserable infant than to his bristly charge, scarcely allowed him food sufficient to sustain nature; when hungry and faint, the poor little wretch actually sucked the milch sow! and to satisfy his craving appetite browsed upon the herbage! At his first reception into the institution, he would steal secretly on all fours into the garden, and commit great devastation upon the salad beds; nor was he induced, till after repeated chastisement, to give up his unwonted luxury. The sequel of the story is encouraging:—After unspeakable pains, the more amiable qualities of Clement began to develop; he discovered an uncommonly kind and obliging disposition, which gained him the affection of his companions, and by his humble and submissive deportment he became not only a favorite with his teachers, but an example to others who had previously enjoyed much greater advantages. He requited his benefactors by cheerfully employing his strength in the lowest services, and continued a faithful Gibeonite, a hewer of wood, and a drawer of water for the institution."

Such is the specimen of their scholars; and yet in an early report the Count and his friends could say,—"*Come, ye dear friends of humanity, come and see what the compassion of God has already done for this little flock, once wild, corrupted, debased beyond conception,—sunk almost beneath the level of the brutes. Oh! come and admire the wonderful transforming power of the gospel, which of these fierce lions'*

cubs hath made tame meek lambs. Come and rejoice over the modesty and obedience they evince; their love and attachment, not only to their teachers and benefactors, but even to strangers; see their industry, activity, and desire to be useful,—come listen to the harmonious songs with which they praise their Creator and Redeemer, and hear from their tender lips their gratulations over their deliverance! Especially come, oh! come, and unite with us in prayer and thanksgiving to our Lord and Saviour, who has never left himself without a witness among his creatures."

This will seem to many the language of enthusiasm; it is so if we apply that term to deep and ardent faith pervading our daily life, and inspiring with a quickening spirit even the daily drudgery of the work he had undertaken. *Ora et labora*, was his watchword. He had constant and harassing difficulties in raising the necessary funds. In many instances, his own ardor kindled that of others, and unexpected supplies arrived at a moment of need, which he received as a gift and encouragement from his Heavenly Father; but he had frequently trying disappointments,—still greater trials arose from the condition of the children.

"Great wisdom and prudence," continues the narrative, "as well as incessant labor and attention, were required in managing such children as have been described, even so far as to prevail on them to remain under any partial restraint, and to receive any instruction. Their ideas of right and wrong had to be corrected, and their sense of enjoyment rectified, even in the lower capacities of animal enjoyment. They had no distinct conceptions with regard to property, nor could they perceive any injustice in applying to their own use whatever suited their convenience, and might be easily obtained. Bodily privation, cold and hunger, were the sources of their several suffering; and their highest enjoyments the luxurious indolence of basking in the sunshine, or before a comfortable fire, or a nauseous gluttony indulged in to repletion. \* \* The vitiated appetites of the children, till corrected, derived more gratification from gluttony at one time, and almost starvation at another, than from the equable and moderate supply received at stated hours, which the rules of a well ordered household provided. Nor was the properly prepared diet itself agreeable to their taste; they relished sour and wild fruits, raw vegetables, half-raw flesh, and a superabundance of bread, more than the same articles properly cooked, and fully but frugally administered. The discipline required was uniform, steady and strict, yet kind. To gain their affections, without indulging their early vicious propensities, was no easy task, but until this was accomplished, nothing could be done effectually for reclaiming such wayward vagabonds. The training is threefold; and while the object of each division is distinct, they are all three carried on together in harmony with one another. In the industrial department, mechanical aptitude and such practical habits as may tend to secure a livelihood are aimed at;—in the mental department, an endeavor is made to develop the powers of the understanding, and impress it with religious truth;—the moral department is conducted so as to awaken the conscience, to inspire the love of God, and to open the heart for the reception of the Holy Spirit."

"The Count considers the 220 persons collected together within the walls of Dusselthal, whether as scholars, servants, or teachers, as one family; he lives among them as a father, taking the most lively interest in every thing that concerns their welfare, bodily or spiritual;—he shares their joys and sorrows pointing both to the same great end."

Did space permit, it would be interesting to watch him in his family at the Christmas fete,—at the funeral of his little daughter, which consecrated their cemetery—"Das Himmels-garten." But we must conclude this brief account of Dusselthal, and can not do so better than in the words of its founder, which so vividly exhibit the spirit in which it is conducted.

"Every thing in Dusselthal tends, either directly or indirectly to the promoting the kingdom of God; it is this that makes all my labors so pleasant. Every walk, every step, every employment, all are connected with the kingdom of God; and, oh! it is blessed to labor for that kingdom. I desire life only for this end!"

It is a mournful sequel to this touching record of devotion and love, that the Count's health and strength have been exhausted by his exertions, which have not been supported by others as they ought. The energy and talents which should have been left unimpaired for the sustaining of the spiritual life of the establishment, have been wasted by pecuniary difficulties, and now the inhabitants of the neighboring town feel obliged to do what they should ungrudgingly have done before, form a regular fund for the support of the establishment. It is individual love and zeal which alone can rightly guide such institutions, but this must be sustained and encouraged by the aid of the many.

## XX. EDUCATIONAL MOVEMENTS AND MISCELLANY.

### ENGLAND.

#### BENEFITS OF THE SCHOOL OF MINES.

It has been proposed in England to transfer the "department of Science and Art," now organized under the Board of Trade, to the office of the Minister of the crown who may be charged with the education of the people.

This proposition called forth, in January last, a letter from Sir R. I. Murchison, Director General of the Geological Survey, in which he objects to such a transfer, so far as it relates to the geological survey and its affiliated museum and school of mines, all of which are now included in the department of Science and Art.

In this letter he thus speaks of the benefits of the school of mines. "The effects which have resulted from our teaching have been beneficially felt, both at home and through the most distant regions, inasmuch as our school has already afforded geological mining surveyors to many of our colonies in the East Indies, Australia, and the Cape, whilst at this moment the legislatures and governments of the West Indies are petitioning for mineral surveyors of their respective islands, and Her Majesty's government joining, as I am happy to say, in this enlightened and liberal movement, have applied to me to recommend suitable persons for such employments.

Next to the officers of Her Majesty or the Hon. East India Company's service have spontaneously taken advantage of our Scientific Instructions, which they know will give them advantages in foreign lands, instruction, too, which they obtain from us at half the usual charges, who can not be had elsewhere in this country.

A striking proof of the interest attached to the useful instruction afforded by our institution, is also given by the presence of 600 worthy men who attend the courses of evening lectures, delivered gratuitously by our professors; the tickets being so sought after that they are applied for and distributed within five hours from the commencement of their issue."

His objection to the proposed transfer is thus stated: "Liberal as the ministers may be under whose control the general education of this nature may be placed, there is little doubt that in this country, the

greater number of its instructors will be drawn from among such of the graduates of the ancient universities, as both by their training and position must be, to a great extent, disqualified from assigning their due importance to the practical branches of science. Such persons may be eminent in scholarship and abstract science, and yet ignorant of the fact that the continued prosperity of their country depends upon the diffusion of scientific knowledge among the masses. They may, with the most sincere and earnest intention, not only fail to advance, but even exercise a retarding influence on such diffusion, and may object to a course of study which, as now pursued, is irrespective of religious teaching. Experience has shown in how sickly a manner practical science is allowed to raise its head under the direction of those persons whose pursuits are alien to it; whilst in every land where it has had due support, the greatest benefits have resulted."

#### EDUCATION DEPARTMENT.

The proposition referred to in the foregoing article has passed into an Order of Council, approving a report of the Privy Council, recommending,—1. That in future the Education Department, (so to be called,) be placed under the Lord President of the Council, assisted by a member of the Privy Council, who shall be Vice-President of the Committee of the said Privy Council on Education; and 2, that the Education Department include the education establishment of the Privy Council-office, and the establishment for the encouragement of science and art, now under the direction of the Board of Trade and called "The Department of Science and Art." Both these establishments are to be under the orders of the Lord President. The new Education Department is to report on such questions concerning education as may be referred to it by the Charity Commissioners, to inspect the naval and regimental schools, and to examine into the instruction in nautical science given in the navigation schools connected with the Department of Science and Art.

#### OXFORD COMMEMORATION.

The following account of the "great day of Oxford,"—a sort of 4th of July of the undergraduates of the University, is copied from a report in the London Times:

"The series of forms and festivities with which it is the time-honored custom of Oxford to celebrate the memory of its many "Founders," culminated yesterday, the 4th instant, in the grand day, emphatically the "Commemoration," under more than usually interesting circumstances. The usages of the week always curiously blend the serious and the gay; on the sermon follows the boat race, the lecture is succeeded by the flower show, the orations by the concert; but this year Oxford has deferred, for a brief space, its rejoicings on the conclusion of peace, and thus a general illumination added a display of national feeling on a great present event, to the more local expressions of gratitude to the past. Nor has the war itself been unfavorable to the commemoration of the year; one of the last important events of the conflict gave to the military history of the nation a name that will forever occupy a foremost place in it; and much, it may be even said, a very great part of the interest with which the proceedings of yesterday were invested, sprang from the announcement that Sir W. Fenwick Williams, the defender of Kars, was among those on whom the University purposed to confer its honors. Indeed, the list of the recipients of this mark of distinction



indicates how deeply the feeling of the hour reflects the emotions of the short but eventful period the country has just passed through. This list includes three Generals, of whom two have borne prominent, if not equal parts in the military operations; two Admirals, of whom nearly the same may be said; next there is the representative of the Sultan, in whose cause the allies drew the sword, Musurus Bey; and the Earl of Clarendon, the Minister and negotiator of England who signed the treaty of peace.

The anxiety to gain admission to the Theatre was excessive, and taxed to the utmost the kindness of all those privileged to pass a friend through the barriers, which were guarded with almost military severity. The ladies and the under graduates had a priority in this respect; the upper gallery, it is needless to say, was rapidly filled by the latter. Anything and everything was cheered, as usual, and anybody at all objectionable, was duly apprised of the sentiments of the Upper Thousand toward them. Some local notabilities were received in a manner indicating they were better known than liked in the higher regions; but on the whole, a commendable amount of good temper was exhibited. The selection of ladies' bonnets commenced early, but the positive colors were soon exhausted, and we observe that the neutral tints escape notice, being difficult to define with sufficient exactness. So, when the cheers for "the Red, White, and Blue" had been given, "the lady with the fan," and "the lady with the opera-glass" were picked out; as there were scores of glasses and hundreds of fans, this was also a very general compliment. Then came cheers for individuals, known and unknown. "Omar Pasha" fell flat; so did "the Sultan," they seemed rather abstract ideas; but "Musurus" obtained great success. So did "the Earl of Clarendon;" "Lord Stratford" found no response, and to "Cardigan" there were dissentients. The cheers for Prince Albert were unanimous, and for "General Williams," enthusiastic. Between the expression of private antipathies and public homage, the time wore on, till, at 11 o'clock, the procession of University authorities, in all the splendor of robes and maces, entered the Theatre. The Chancellor, (the Earl of Derby,) took his seat, having his Royal Highness, Prince Albert, on his right hand, and Prince Frederick William, of Prussia, and the Prince of Baden on his left. The principals of the several colleges and the candidates for the honors of the day were around and below them.

The Chancellor then read the list of those on whom the degree of D. C. L. was to be conferred, *honoris causâ*; they were:

His Royal Highness, Prince Frederick William, of Prussia.

His Royal Highness, the Prince of Baden.

Count Bernstorff.

His Excellency Musurus Bey, Minister Plenipotentiary of His Imperial Majesty the Sultan.

The Right. Hon. the Earl of Clarendon, K. G., G. C. B.

The Right Hon. the Earl of Elgin and Kincardine, K. T.

The Right Hon. Lord Ashburton.

Admiral Sir Edmund Lyons, Bart., G. C. B., K. C. H.

Rear Admiral the Hon. Sir R. Saunders Dundas, K. C. B.

Sir Henry Holland, Bart., M. D., F. R. S.

Major-General Sir Collin Campbell, G. C. B.

Major-General Sir W. Fenwick Williams, of Kars., Bart., R. A., K. C. B.

Major-General Sir Harry D. Jones, R. E., K. C. B., Governor of the Royal Military College, Sandhurst.

Lord Abercorn.

Dr. Sandwith, the English Physician at Kars.

Dr. Barth, the African Traveler.

The name of the Prince of Prussia was received with a loud and hearty burst of applause; so was that of the Prince of Baden; the same token of recognition and approval was bestowed on the Earl of Clarendon, the Earl of Elgin, and Lord Ashburton. The cheers for Sir Edmund Lyons and Sir C. Campbell were very hearty; indeed, all the names were well received; but that of General Williams was welcomed by a perfect storm of applause, which lasted for several minutes, though the Chancellor laid particular emphasis on the words "*etiam absens*." It was generally regretted that this gallant officer was not present to witness the enthusiasm his name excited in the hearts of so many of his countrymen. It was

a tribute of which any man, whatever his services, might be proud. The names were then proposed *seriatim* to the doctors and masters by Dr. Travers Twiss, Regius Professor of Civil Law; the under graduates, as usual, volunteering the reply of "*placet*."

### BELGIUM.

#### CHARITABLE CONGRESS AT BRUSSELS.

A Congress of gentlemen from different nations, interested in the public and private administration of charity, was held at Paris, in July, 1855.

A second meeting is to be held in Brussels, commencing on the 15th of September next, the object of which is thus stated in the official programme: "to place in personal relations those who, in different ways, are occupied with the amelioration of the laboring and indigent classes of society, to afford the means of comparing institutions of mutual benefit, of charity, and of public utility in all countries; and, finally, to elucidate, so far as possible, various social problems."

Under the last named head the various subjects proposed for discussion are enumerated with some detail. We specify the more important topics.

1. Condition of the working classes.
2. Means of subsistence.
3. Promotion of health, character of different occupations, lodging houses, baths, &c., &c.
4. Education and Instruction, nurseries, infant schools, primary schools, Sunday schools, industrial schools, popular circulating libraries, popular amusements, gymnastics, &c.
5. *Institutions de providence*, savings banks, mutual aid societies, various kinds of assurance.
6. Pauperism, charitable institutions, legislation, aid at home, hospitals, dispensaries, asylums &c., for the aged, incurable, orphans, foundlings, idiots, blind, deaf and dumb, laws &c., for extinction of begging, *Monts de piete*, &c.
7. Agricultural colonies, reform schools, farm hospitals, &c.
8. Crime, penitentiary systems, cellular prisons, care of released prisoners.
9. Increase of population, emigration.

These questions or topics cover, it will be seen, nearly the whole field of charitable economy, and are too numerous for full discussion in any single congress. Impressed with this fact, the *Société d'Economie Charitable*, of Paris, in accepting the invitation to participate in the meeting at Brussels, decided to limit itself to the examination of four topics, viz. :—

1. Practical application of the principles of association to relief against sickness, old age, want of occupation, to the provision of food, nourishment, &c., the acquisition of property, &c.
2. Organization of museums of domestic economy, and relations to be established between the museums of different nations.
3. Amelioration and extension of popular education, measures to be taken against intemperance and debauchery, popular diversions and amusements.
4. Emigration from cities to the country, to colonies, and to foreign lands.

### HONDURAS.

Honduras has two universities, one established in the city of Comayagua, and another in Tegucigalpa. They have, nominally, professorships of law, medicine, and theology; but, in fact, their course of instruction is little in advance of the common schools of the United States. In the department of natural sciences,

and in those studies of greatest practical importance to the development of the resources of the country, chemistry, engineering, the higher mathematics, they are entirely deficient, and much behind those of Nicaragua, San Salvador, and Guatemala. Indeed, most of what are called educated men in the state have received their instruction in foreign countries, or at the institution just named. Efforts have been made to elevate the character and efficiency of these establishments in Honduras; but, they have been too feeble to produce any important change. Still the fact that they have been rescued from a state of entire suspension, and are not deficient in pupils in the elementary branches of knowledge, gives encouragement for the future, and, with the restoration of peace and the return of national prosperity, there is reason to believe they may become an honor to the country.

The Lancasterian system was introduced into Central America during the existence of the Federation, and has been continued, with some modifications, in the various States. The requisite data for estimating the public or private schools of Honduras do not exist, since such few returns from the Departments as have been incidentally published in the official paper are confessedly imperfect.

On a very liberal estimate, there may be four hundred schools in the State, with an average attendance of 25 scholars each, or an aggregate of 10,000 pupils, of all classes, in a total population of 350,000.

There are no libraries in the State worthy of mention, and, beside the Government Gazette, no newspapers. There are several presses, but they throw off little except acrimonious political pamphlets, or handbills of a personal character.

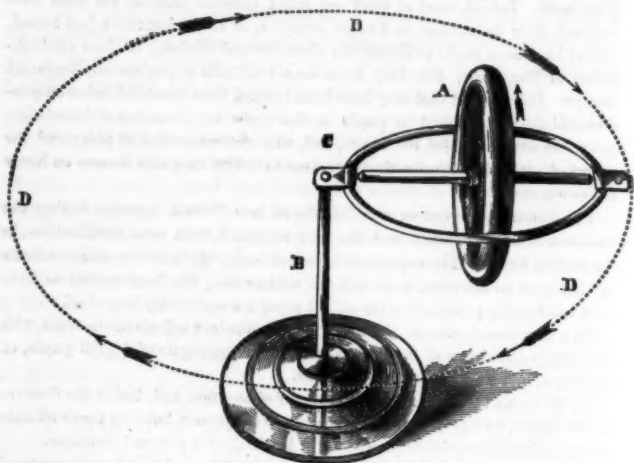
It follows, from these facts, that the ignorance of the people at large is profound and melancholy.

E. G. SQUIER, *Notes on Central America.*

#### UNITED STATES.

We have received Legislative Documents, or the Annual Report of the Superintendent, or Commissioner of Public Schools, or Board of Education for the following States, viz.:—Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Virginia, North Carolina, Georgia, Alabama, Louisiana, Texas, Illinois, Indiana, Wisconsin, Iowa, and Ohio,—from which we purpose to make, in our next number, a SUMMARY OF THE CONDITION AND PROSPECTS OF PUBLIC INSTRUCTION IN 1855–56, in the language of those who are entrusted with its administration. The article will be long, but will contain the latest and most reliable view of the state of the common schools, and the efforts which are making, or which are proposed for their improvement.

### THE GYROSCOPE, OR MECHANICAL PARADOX.



The simple apparatus represented in this figure consists of the wheel A, which has a heavy rim, and is suspended in a brass ring, upon steel points, which enter the ends of the axis. The two ears attached to this ring, at the ends of the axis, are indented, to receive the point of the standard, B.

If a rapid rotation is given the wheel A, by winding a cord on the brass spool placed on the axis, and pulling it vigorously, as a boy would spin a top, (the ring being firmly held,) the wheel seems to become endowed with a new power, which, apparently, puts at defiance the laws of gravity. When one of the ears is placed on the point of the standard, B, and the other ear allowed to rest on the finger, supporting the axis in a horizontal position, nothing singular is observed. If the finger is slowly lowered, the end of the axis will fall with it; but, if the finger be drawn away *horizontally*, leaving the end unsupported, the instrument, with marvelous independence, will proceed to take care of itself, and will not only maintain its horizontal position, but, at once, commence revolving around the standard on which it rests. The entire machine, which weighs over a pound, remains suspended *almost* on nothing, and a half pound weight may be hung on the *unsupported end* without changing its inclination.

If the outer end is elevated or depressed by the hand, the axis *retains the inclination* last given it, except that, if above a horizontal plane, it will gradually *rise* while the force of the rotation continues sufficient, or, if below, it will slowly fall.

The same phenomena will occur if the Paradox is suspended by a cord fastened to the universal joint on one of the ears. This mode of use is safest, as the delicate mechanism will be materially injured by falling; there is less friction, however, when the ear rests on the iron point.

It will be observed that, when the wheel rotates in one direction, the machine revolves in the *opposite* direction, as indicated by arrows in the figure. If the horizontal revolution is stopped, the Paradox instantly falls.

If the ring is held in the hands by the ears, and one end *suddenly* raised or lowered, an unexpected resistance is encountered, and a strong tendency to revolve is manifested; or, if held firmly by one ear, and the hand containing it allowed to fall from a horizontal position, the same tendency to revolve will be felt. If suspended by a cord, fastened to the joint on one ear, and swung like a pendulum, it will be found to describe an ellipse; in fact, it will be impossible to swing it in a straight line.

A socket, with branching arms, forming a semi-circle, accompanies each instrument, (though not shown in the cut.) If this socket is placed on the standard, and the Paradox suspended between the arms, by pivots placed in the ring at right angles to the axis, other singular phenomena may be observed.

1. When the Paradox is accurately balanced on the pivots, and the wheel set in rapid motion, the axis will continue to point in one direction, even though the *standard* be turned entirely round. A more striking illustration of this is seen by placing the socket on a wire at the end of a lever. If the lever be made to describe a horizontal circle, the axis of the wheel will be found to point in the *same direction* in every part of the circle. Is not this precisely analogous to the parallelism of the Earth's axis, in her revolution round the sun?

2. If, when the Paradox is suspended as in the preceding experiment, a weight is hung on one ear, the paradox *does not lose its balance*, but immediately begins to revolve horizontally, always stopping the instant the weight is removed. If the weight is hung on the other ear, the revolution is in an opposite direction.

3. If a slight horizontal motion is given to the arms, thus changing the plane of the wheel's rotation, the axis of the wheel will change vertically, and by a few movements of the arms *backwards and forwards* a *vertical revolution* of the Paradox will be produced.

This curious instrument is attracting much attention from scientific men; but, the causes of its action are not yet fully explained. Whoever shall account for them satisfactorily to himself, or shall discover new phenomena, will confer a favor by informing the undersigned. The originator of the Mechanical Paradox represented in the above cut, is Mr. Abner Lane, of Killingworth, who has arranged with the Holbrook School Apparatus Co., of Hartford, Conn., for its manufacture and sale. It will be sent, by express, to any person remitting the price, \$5.00, \$3.00, or \$2.50, according to style, to

F. C. BROWNELL, Sec'y

Hartford, Conn.

## XXI. BOOKS ON EDUCATION.

---

### EDUCATIONAL NOMENCLATURE AND INDEX.

We have on our table a number of recent publications, and more in our Library, of older date, and of greater value, from the American, English, French, and German press, on the history, organization, administration, instruction, and discipline of schools of different kinds and grades, and on the principles and practice of education, to which we shall, from time to time, call the attention of our readers. In doing so, we propose not only to give the title-page and a brief description of the book or pamphlet, but, in most instances, if the publication is a valuable contribution to the literature of education, the CONTENTS; and, if the work consists of several numbers or volumes, an Index to the principal topics treated of.

These contents and indexes will ultimately be included in a volume to be entitled "EDUCATIONAL NOMENCLATURE AND INDEX; or an explanation of words and terms used in describing systems and institutions of education, in different countries, with reference to books and pamphlets where the principal subjects connected with the organization, administration, instruction, and discipline of schools are discussed."

This volume will include an INDEX to the principal educational periodicals and official reports of Superintendents of public schools in this country. There is a vast amount of information as to the past history and present condition of schools, public and private, elementary and superior, general and special, as well as of able discussions of the principles and practice of education, scattered through occasional addresses, school periodicals, legislative and departmental reports and documents, which are not available to persons engaged in educational investigations, from their not having access to those publications, or not knowing any reliable and convenient source of information respecting their contents.

As an example of the thoroughness with which the most important publications on the subject of education and schools will be analyzed and indexed, we publish in this place an Index to the twenty-six volumes of Proceedings and Lectures of the American Institute of Instruction, which was originally prepared for the purpose of exhibiting the usefulness of that Association in the variety of educational subjects and topics presented and discussed by eminent teachers and writers at its annual meetings since 1830.

We shall give an Index to the five volumes of the American Journal of Education, from 1826 to 1830, and the nine volumes of the American Annals of Education, from 1831 to 1839, in an early number; also, to the fourteen volumes of the Massachusetts Common School Journal; and, to the Educational Statistics of the American Almanac.







	PAGE.	YEAR.
Campbell's Philosophy of Rhetoric, . . . . .	170	1830
CARLE, M. M., on Maternal Instruction and Infant Schools, . . . . .	101	1834
Carstairs's System of Chirography, . . . . .	xiv.	1833
CARTER, H. W., Means of forming Habits of Attention, . . . . .	xiii.	1835
CARTER, JAMES G., on Education of the Faculties, and teaching Geography, . . . . .	53	1830
"    "    Necessity of Educating Teachers, . . . . .	xix.	1831
Calhoun William B., on Duties of School Committees, . . . . .	xv.	1832
Calisthenics, in Education of Girls, D. Warren, . . . . .	45	1835
CHANNING, WALTER, on Moral and Natural History, . . . . .	255	1830
CHANNING, WILLIAM E., on the Value of a Good Teacher, . . . . .	253	1833
Character, simplicity of, in teacher, Francis Dwight, . . . . .	137	1841
CHASE, C. C., on God's Plan for Educating men, . . . . .	1	1850
Chauncy Hall School, Boston, Regulations of, . . . . .	85	1840
Chemistry, History and uses of, Dr. Jackson, . . . . .	209	1834
Cheeselden, W., on Observations on a blind youth restored to Sight, . . . . .	113	1831
Chest, Injury of Compressing, . . . . .	48	1830
Cicero's Tribute to Refining Influence of Knowledge, . . . . .	26	1834
Cities, Organization of Public Schools for, . . . . .	x.	1845
Civilization, influence of Intellectual action on, . . . . .	145	1839
CLARK, N. G., on the Common School System of Vermont, . . . . .	xx.	1848
Classic, What Constitutes a, Prof. Crosby, . . . . .	17	1835
Classical Culture, on the study of the best authors, by Elbridge Smith, . . . . .	68	1834
Classical Learning, Claims of, Cornelius C. Felton, . . . . .	305	1830
"    "    John Mulligan, . . . . .	25	1837
"    "    A. H. Weed, . . . . .	163	1844
"    "    Moral Effects of, . . . . .	327	1830
"    "    Advantages of, . . . . .	39	1831
"    "    Best method of Teaching, . . . . .	155	1833
"    "    "    "    A. Crosby, . . . . .	15	1835
"    "    Defective Study of, Prof. Hooker, . . . . .	53	1854
"    "    Dr. Arnold's opinion of, . . . . .	64	1852
"    "    Daniel Webster's, . . . . .	7	1847
Classic Taste, Cultivation of, Mr. Lincoln's Lecture, . . . . .	77	1839
"    "    E. Smith, . . . . .	69	1854
Classification of Knowledge, Solomon Adams, . . . . .	31	1843
"    "    American Society, . . . . .	80	1831
Classification of Schools, S. M. Burnside, . . . . .	73	1833
Clergy, in Rural Districts, . . . . .	43	1833
CLEVELAND, NICHOLAS, on Lyceums, . . . . .	145	1830
CLEVELAND, H. R., on Intellectual Action on Civilization, . . . . .	145	1836
"    "    on Knowledge of Ancient Art in Higher Education, . . . . .	xv.	1838
"    "    on Study of Mythology, . . . . .	xvii.	1835
Cobbett, William, on Education and Crime, . . . . .	8-11	1834
Code of Laws in School, Discussion on, . . . . .	xviii.	1838
"    "    Mr. James' Lecture, . . . . .	85	1838
COLBURN, WARREN, on Teaching Arithmetic, . . . . .	279	1830
"    "    Tribute to, by T. Sherwin, . . . . .	166	1834
"    "    Teach One Thing at a Time, . . . . .	286	1830
"    "    Teach only one Point of it at Once, . . . . .	287	1830
"    "    Teach that Thoroughly, . . . . .	287	1830
"    "    Let the Pupil do everything Himself, . . . . .	287	1830
"    "    "    "    Review of Sum, . . . . .	288	1830
"    "    See that the Pupil understands the Question, . . . . .	292	1830
"    "    Let the Pupil reason upon a difficulty in his own Way, . . . . .	243	1830
"    "    Let him explain his own Process, . . . . .	294	1830
"    "    Be thoroughly prepared for Recitation, . . . . .	295	1830
"    "    Make the Scholars Study, . . . . .	296	1830
"    "    The Teacher must understand his Subject thoroughly, . . . . .	297	1830
Colleges, Conditions of a Successful Administration of, . . . . .	150	1837
Colleges in State of New York, Mr. McKean, . . . . .	191	1852
Columbia College, origin of, . . . . .	110	1852
Common complaints against Teachers, Jacob Abbott, . . . . .	133	1849
Common Sense, indispensable in a Teacher, . . . . .	20	1845
Common Schools Condition and Wants of, L. W. Leonard, . . . . .	103	1851
"    "    Influence of Academies and High Schools on, . . . . .	185	1831
"    "    Management of, Theodore Dwight, Jr., . . . . .	295	1835
"    "    Improvement of, Stephen Farley, . . . . .	69	1834
"    "    "    "    William D. Swan, . . . . .	125	1848
"    "    Obstacles to their greater Success, Charles Northend, . . . . .	63	1844
"    "    Obligations of Towns to elevate, Luther B. Lincoln, . . . . .	109	1846
"    "    Connecticut System of, Denison Olmsted, . . . . .	97	1838
"    "    Female Teachers of, Daniel Kimball, . . . . .	105	1836
"    "    Origin of, in Massachusetts, . . . . .	136	1848
"    "    Source of, to New England, R. Rantoul, . . . . .	31	1839
"    "    Importance of, Samuel J. May, . . . . .	225	1843
Common School Education, Essential features of, Rufus Putnam, . . . . .	55	1846
Comparative Results of Education, Thomas F. Rodman, . . . . .	183	1839
Composition, on Teaching, Asa Rand, . . . . .	167	1832
"    "    Richard G. Parker, . . . . .	183	1837
Composition in Teaching, P. C. Newman, . . . . .	164	1830

	PAGE.	YEAR
Compulsory Attendance of Children at School, . . . . .	xv.	1837
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "    "	xii.	1837
Concord, Proceedings of Annual Meeting at, in 1847, . . . . .	1	1847
Connecticut, Common School System of, . . . . .	97	1838
"    School Fund, Influence of, . . . . .	99	1838
"    Board of Commissioners, . . . . .	110	1838
Conscience, as a Moral Power, . . . . .	56	1837
"    an element of Human Nature, . . . . .	13	1842
Constitutional Law, as a study in Common Schools, Edward A. Lawrence, . . . . .	180	1841
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "    "	949	1834
Conversation, Art of, to be Cultivated, . . . . .	96	1831
"    As a Discipline for Oratory, . . . . .	135	1837
Corporations for the Advancement of Learning, . . . . .	144	1837
Corporal Punishment in Schools, Discussions on, . . . . .	xv.	1833
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	x.	1846
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	vi.	1843
Courtesy, or School Deportment, Gideon F. Thayer, . . . . .	83	1845
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	1	1851
Cousin, Victor, on Classical Studies, . . . . .	30	1835
"    "    Teachers Seminars, . . . . .	176	1837
Cowper's lines on Discipline in Schools, . . . . .	81	1836
Crime and Education, Caleb Cushing, . . . . .	14	1834
Crime, its Causes and Cure, a Prize Essay, by C. Pierce, . . . . .	xiii.	1853
"    Statistics of, . . . . .	14	1834
Crossy, A., on Study of the Classics, . . . . .	15	1830
"    on Classical and Scientific Studies, . . . . .	xvii.	1855
Crosby, William G., Claims of the Free School upon all Classes, . . . . .	xxi.	1848
Cushing, Caleb, The True Uses of Instruction, . . . . .	3	1834
Cushing, Thomas, Jr., Results to be aimed at in School Instruct'n and Discipline, . . . . .	29	1849
"    "    Division of Labor in Schools, . . . . .	121	1839
"    "    Teacher in the Nineteenth Century, . . . . .	71	1851
Dancing, Suitable exercise for Girls, . . . . .	44	1830
Dangers of Teachers, Daniel F. Gailoup, . . . . .	103	1844
Daughters, education of, E. P. Weston, . . . . .	73	1855
Davis Emerson, on Mind and its Development, . . . . .	61	1839
Davis, Henry, on the Administration of the Discipline of Colleges, . . . . .	153	1837
Debating Club, Advantages of, to Lord Brougham, and Henry Clay, . . . . .	76	1831
Declamation, (Elocution) William Russell, . . . . .	943	1837
"    "    T. D. P. Stone, . . . . .	197	1836
"    "    D. Fosdick, . . . . .	133	1837
Defects of our Systems of Education, R. B. Hubbard, . . . . .	263	1843
Definitions and spelling of Words, Gideon F. Thayer's Lecture on, . . . . .	125	1830
Demosthenes, Study of, . . . . .	295	1830
Deportment in Schools, . . . . .	8	1852
Development of the Faculties, and Acquisition of Knowledge Compared, . . . . .	x.	1833
Discipline, School, ends of, Henry L. McKean, on, . . . . .	133	1835
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	185	1844
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	91	1854
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	79	1836
Discipline in the formation of good Habits, . . . . .	xv.	1831
Discussion of Resolutions not to be followed by a Vote of Institute, . . . . .	141	1830
Dictionary as a Book of Reference, . . . . .	119	1852
District School Library System in New York, . . . . .	131	1848
Districts, Multiplicity of, in Towns, an Evil, . . . . .	47	1839
Diseases incident to Literary Life, George Haywood, . . . . .	121	1839
Division of labor in Instruction, Thomas Cushing, Jr., . . . . .	70	1846
"    "    "    "    "    "    "    "    "    "    "    "    "    "    "	257	1830
Drawing as an Introduction to Penmanship, W. R. Johnson, . . . . .	159	1852
"    "    Whitaker's Lecture on, . . . . .	45	1830
Dress, Mischievous Fashions in, . . . . .	vil.	1843
Domestic Economy, Science of, as a branch of Female Education, Miss Beecher, . . . . .	133	1832
Domestic Influences in relation to Education, . . . . .	209	1831
DURGIN, CLEMENT, on Natural History, . . . . .	185	1843
Duties of the faithful Teacher, Greenleaf's Lecture on, . . . . .	53	1845
"    "    Examining Committees, E. D. Sanborn's " . . . . .	8	1840
Duty, Sense of, as a Motive to Study, . . . . .	40	1840
"    "    to be Cultivated in Schools, . . . . .	205	1835
DWIGHT, THEODORE, Jr., on Management of Common Schools, . . . . .	137	1841
DWIGHT, F. S., Simplicity of Character, . . . . .	96	1846
Ear, Education of, . . . . .	xvi.	1834
Ear, Mechanism of, D. Smith, . . . . .	59	1850
Early Training, Importance of, Solomon Jenner, . . . . .	59	1849
Earnestness, Roger S. Howard on, . . . . .	93	1837
Edson Theodore, Comparative Merits of Public and Private Schools, . . . . .	3	1831
Education, Accidental, . . . . .	58	1830
"    Objects of, James G. Carter, . . . . .	66	1838
"    "    A Branch of Moral and Intellectual Philosophy, . . . . .	xvi.	1836
"    "    Ignorance of the Community Respecting, . . . . .	139	1854
"    "    An Artistic Work, E. B. Huntington, . . . . .	153	1835
"    "    An Element of Civilization, . . . . .		

	PAGE.	YEAR.
Education, a Science, Dr. Wayland, . . . . .	12	1830
"    "    J. G. Carter, . . . . .	71	1830
"    Board of, . . . . .	75	1833
"    Early, A. B. Alcott, . . . . .	129	1833
"    Essentials of, Thomas H. Palmer, . . . . .	79	1849
"    Comparative Results of, Thomas P. Rodman, . . . . .	183	1839
"    Disciplinary, . . . . .	90	1854
"    Demanded by our Civil Institutions, Benjamin Larabee, . . . . .	97	1849
"    Defects in our System, . . . . .	203	1843
"    Condition of National Greatness, E. D. Sanborn, . . . . .	149	1840
"    "    a Free People, Robert Rantoul, Jr., . . . . .	5	1839
"    "    Republican Government, Horace Mann, . . . . .	261	1844
"    Female, . . . . .	15	1831
"    "    Joel Hawes, . . . . .	111	1834
"    "    William Russell, . . . . .	33	1844
"    "    E. P. Weston, . . . . .	73	1855
"    In Different Ages, Samuel W. Bates, . . . . .	133	1851
"    Intellectual, Joshua Bates, . . . . .	119	1841
"    Moral, Jacob Abbott, . . . . .	45	1831
"    "    Robert C. Waterson, . . . . .	225	1835
"    "    Joshua Bates, . . . . .	51	1837
"    "    George B. Emerson, . . . . .	1	1842
"    "    Charles Northend, . . . . .	103	1851
"    Objects of, Francis Wayland, . . . . .	1	1830
"    "    T. B. Fox, . . . . .	183	1835
"    Of the Blind, Samuel G. Howe, . . . . .	3	1836
"    Of the Laboring Classes, Theodore Parker, . . . . .	65	1841
"    Of the Faculties, Samuel J. May, . . . . .	87	1846
"    Progress of, 1830 to 1854, Francis Wayland, . . . . .	1	1854
"    Proper for an Agricultural People, Samuel Nott, . . . . .	35	1835
"    Physical, Darwin H. Ranney, . . . . .	203	1851
"    Practical, W. C. Goldthwait, . . . . .	193	1849
"    Religious Element in, Calvin E. Stowe, . . . . .	1	1844
"    "    "    Heman Humphrey, . . . . .	1	1843
"    "    "    John H. Hopkins, . . . . .	1	1849
"    Self, aided by School, . . . . .	109	1849
"    Elocution, Methods of Teaching, T. D. F. Stone, . . . . .	127	1836
"    "    "    D. Foedick, . . . . .	111	1837
"    "    "    William Russell, . . . . .	243	1837
"    "    "    Francis T. Russell, . . . . .	53	1853
Emerson, Benjamin D., One of Founders of Institute, . . . . .	iii.	1830
Emerson, RALPH WALDO, on Inspiring a Taste for English, . . . . .	x.	1835
Emerson, GEORGE B., One of the Founders of the Institute, . . . . .	iii.	1830
"    On Female Education, . . . . .	17	1831
"    "    Author of Memorial on Normal Schools, . . . . .	xxii.	1837
"    "    "    Superintendent of C. S., . . . . .	xxiii.	1837
"    On Moral Education, . . . . .	1	1842
"    On History of American Institute of Instruction, . . . . .	v.	1850
Emulation in Schools, John L. Parkhurst, . . . . .	125	1831
"    Leonard Withington, . . . . .	131	1833
"    Warren Burton, . . . . .	44	1834
"    Joshua Bates, . . . . .	21	1849
"    Substitute for, Warren Burton, . . . . .	50	1834
"    Discussion on, . . . . .	x.	1849
England, Debate on National Education in, . . . . .	39	1834
English Grammar, Neglect of, in England, . . . . .	162	1831
"    "    First Taught through the Latin, . . . . .	174	1831
"    "    Early Authors of, . . . . .	180	1831
English Language, Study of, D. Huntington, . . . . .	183	1840
English Classic Authors, Study of, Elbridge Smith, . . . . .	103	1834
Erasmus, in connection with Moral Science, . . . . .	167	1839
Evening Schools, . . . . .	xiv.	1853
EVERETT, ALEXANDER H., Progress of Moral Science, . . . . .	157	1839
Examining Committees, Duties of, E. D. Sanborn, . . . . .	53	1845
Example, Better than Precept, . . . . .	8	1835
"    Power of, both Positively and Negatively, . . . . .	87	1836
"    "    On Moral Education, . . . . .	87	1836
Exercise, a law of Physiology, applicable to Body, Mind, Heart, . . . . .	11	1849
Exercise Essential to Physical Education, Dr. Warren, . . . . .	43	1830
"    "    D. B. Hagar, . . . . .	41	1848
Expression, Power of, to be Cultivated after Character, . . . . .	154	1849
"    "    "    . . . . .	207	1849
Europe, Common Schools of, compared with those of United States, . . . . .	xvii.	1837
Eye, Education of, . . . . .	95	1846
Facts, Acquisition of, Dr. Wayland, . . . . .	29	1830
"    "    James G. Carter, . . . . .	59	1830
"    on the Prominence of, in Early Education, W. Hooker, . . . . .	34	1854
Faculties of the Mind, best Mode of Exercising, W. B. Fowle, . . . . .	41	1841

	PAGE.	YEAR.
Faculties of the Mind, symmetrical Development of, . . . . .	3	1853
"    "    Order of Development, Francis Wayland, . . . . .	19	1854
Faculties of the Mind, Cultivated by Use, Dr. Wayland, . . . . .	16	1830
"    "    "    J. G. Carter, . . . . .	61	1830
Faculty of Instruction and Discipline in Colleges, . . . . .	145	1837
Failures in Teaching, John Kingsbury, . . . . .	1	1848
Fagging System in English Public Schools, . . . . .	77	1850
FARLEY, STEPHEN, on the Improvement of Common Schools, . . . . .	69	1834
FISHER, J. D., on the Education of the Blind, . . . . .	xviii.	1834
Fiction, How employed in Early Training, . . . . .	147	1839
FLEMING, A., Use of the Globes in Astronomy and Geography, . . . . .	163	1841
FIELD, BARNUM, Remarks on Character of, P. McIntosh, . . . . .	xvi.	1842
"    "    On History of Boston Public Schools, . . . . .	vii.	1850
"    "    Resolutions Respecting, . . . . .	xvii.	1851
FELTON, CORNELIUS C., on Classical Learning, . . . . .	305	1830
Female Education, George B. Emerson on, . . . . .	17	1831
"    "    John C. Warren, . . . . .	29	1834
"    "    William Russell, . . . . .	33	1840
"    "    Joel Hawes, . . . . .	27	1845
"    "    E. P. Weston, . . . . .	73	1855
Female Teachers, Dr. Wayland on, . . . . .	1	1854
Female Teachers of Common Schools, Daniel Kimball, . . . . .	105	1836
FOLLEN, CHARLES, on the Study of History, . . . . .	xix.	1843
Food, Regulation of, J. C. Warren, . . . . .	46	1830
"    Discussion on, . . . . .	xl.	1835
Free Schools, Resolutions Respecting, . . . . .	xii.	1850
French, Method of Teaching the, . . . . .	xvii.	1837
FOSTER, B. B., on Teaching Penmanship, . . . . .	109	1832
FOSDICK, DAVID, JR., on Elocution, . . . . .	109	1837
FOX, T. B., Meaning and Objects of Education, . . . . .	183	1836
FOWLE, WILLIAM B., The Use and Abuse of Memory, . . . . .	xvi.	1837
"    "    on the Faculties of the Mind, . . . . .	41	1841
"    "    on Teaching Geography, . . . . .	219	1845
FOWLER, WILLIAM C., Influence of Academies on Common Schools, . . . . .	185	1835
FULLER, H., on School Libraries, . . . . .	vi.	1839
FURNESS, WILLIAM H., on Education, . . . . .	1	1841
GALLOUP, DANIEL P., Some of the Dangers of Teachers, . . . . .	103	1844
Geography, Method of Teaching, James G. Carter, . . . . .	82	1830
"    "    William C. Woodbridge, . . . . .	209	1833
"    "    William B. Fowle, . . . . .	219	1845
Geography, Text Books in, . . . . .	83	1830
"    Use of Maps in, . . . . .	84	1830
"    "    Blackboard, . . . . .	89	1830
"    Study of, should begin with Home, . . . . .	87	1830
"    Elementary Studies, Importance of, . . . . .	31	1840
"    "    A. Fleming, . . . . .	163	1841
"    and History, Method of Teaching, George S. Hillard, . . . . .	269	1845
Geometry and Algebra, Francis J. Grund, . . . . .	185	1830
"    T. Sherwin, . . . . .	153	1834
"    Value attached to, in Grecian Education, . . . . .	222	1834
"    basis of Learning, T. Hill, . . . . .	27	1855
German Population in America, . . . . .	91	1835
German Language, on Teaching, by H. Bokum, . . . . .	xii.	1838
Gestures, as expressive of Emotions, . . . . .	123	1837
Girard College, E. C. Wines, . . . . .	85	1842
"    Religious Instruction in, . . . . .	103	1842
Girard, Stephen, Sketch of Life and Character, . . . . .	89	1842
"    Amount of his Bequest to Philadelphia, . . . . .	90	1842
Globes, Uses of, in Astronomy and Geography, . . . . .	163	1841
God's Plan for Educating Man, C. C. Chase, . . . . .	1	1850
GOLDTHWAIT, W. C., on Practical Education, . . . . .	193	1849
GOODRICH, SAMUEL G., Man the Subject of Education, . . . . .	165	1838
Government, Science of, as a Branch of Popular Education, Joseph Story, . . . . .	249	1834
"    "    E. A. Lawrence, . . . . .	179	1841
Government of the United States, of Judge Story, . . . . .	257	1834
"    "    S. C. Phillips, . . . . .	88	1831
"    "    R. Rantoul, . . . . .	4	1839
Government, Duty of Citizens to, Brougham and Cicero, . . . . .	274	1834
GOULD, A. A., on Natural History as a Study in Common Schools, . . . . .	227	1834
Gradation of Schools, S. M. Burnside, . . . . .	73	1833
"    Francis Wayland, . . . . .	4	1854
Grammar, English, Gould Brown, . . . . .	139	1831
"    "    Assa Rand, . . . . .	167	1833
"    "    R. G. Parker, . . . . .	113	1838
"    "    place for, in Scheme of Education, . . . . .	52	1854
"    "    how begun with Young Children, Dr. Howe, . . . . .	68	1842
GRAY, ASA, importance of the Natural Sciences, . . . . .	91	1841
GRAY, FRANCIS G., Utility and Defects of Education, . . . . .	3	1839
Greece, Past and Present condition of Education in, . . . . .	xii.	1853



	Page.	Year.
GREGG, T., on Philosophy of Mind,	113	1836
GREENE, THOMAS A., on Duty of Visiting Schools,	51	1840
GREENE, GEORGE W., on Jacotot's Method of Instruction,	181	1838
GREENE, BERTHA, on Manual and Mental Labor Combined,	191	1834
GREENE, SAMUEL S., Method of Teaching to Read,	207	1844
" " On Teaching English Grammar,	ix.	1847
GREENE, CHRISTOPHER A., Methods of Teaching Spelling,	181	1851
GREENLEAF, ALFRED, on Some of the Duties of the Faithful Teacher,	185	1843
Grimke, THOMAS S., on the study of Natural History,	334	1821
GRICE, WILLIAM, on Physical Education,	xi.	1834
Griscom, JOHN, Resolutions on the Death of,	viii.	1852
GRUND, FRANCIS J., on Teaching Geometry and Algebra,	185	1830
Gymnastic exercises, in all Seminaries of Education,	46	1830
" " Use of, to Cicero and Julius Cesar,	46	1831
GUYOT, PROF., The True method of teaching Geography,	xiv.	1853
HAGAR, D. B., on Supervision of Schools,	41	1851
HALE, BENJAMIN, on Teaching Natural Philosophy,	291	1833
HALE, JOSEPH, on School Discipline,	185	1844
" " Thorough Teaching,	x.	1847
HALL, SAMUEL R., on the Necessity of Educating Teachers,	243	1853
" " on School Discipline,	165	1836
Happiness, love of, Motive to Study,	13	1849
Hartford, Proceedings of Annual Meeting,	1	1848
Harvard University, Visitation Report of,	143	1837
HARRINGTON, JOSEPH, on Vocal Music as a Branch of Education in C. S.	53	1836
HAWES, JOS. L., on the Dignity of the Teacher's Office,	1	1845
" " on Female Education,	97	18-5
HAYWARD, GEORGE, on Diseases of a Literary Life,	47	1839
HAYWARD, J., on the Discipline and Management of Schools,	xv.	1831
Head and Heart, Elisha Bartlett on,	33	1838
Hereditary tendencies to certain Physical Defects,	11	1836
Heart, Education of, D. Bartlett,	33	1836
Health, Importance of, to exercise of the Mind, Dr. Warren,	28	1830
" " Females,	29	1830
" Ways in which literary pursuits are Injurious,	30	1830
" Preservation to be regarded in all plans of Education,	51	1820
" Want of, a frequent cause of failure in Teaching,	13	1848
HILLARD, GEORGE S., on History and Geography,	269	1845
HILL, THOMAS, on Geometry,	27	1855
" " Languages,	xix.	1855
High School, Public, Discussion on,	x.	1842
History and Geography, Connection between,	269	1840
" Instruction in, Elizabeth P. Peabody, on,	193	1855
History, on the best mode of Prosecuting, Dr. Pollen,	xix.	1834
" Study of, in Elementary Schools,	36	1840
" " " "	43	1843
HOLBROOK, JOSHUA, Resolutions on his Life and Character,	viii.	1854
Holland, Normal School System of, by C. Brooks,	xvi.	1837
Home, fondness for, to be Cherished,	49	1830
Home, Preparation for School, Jason Whitman on,	1	1846
Homer, Influence of, on the Human Race,	317	1833
HOOKER, H. B., on Influence of Moral upon Intellectual Improvement,	39	1844
Hooker, Worthington, on Facts in Education,	14	1844
HOVISA, J. H., on Religious authority in Modern Education,	1	1849
Howard, John, the Philanthropist, tribute to,	63	1849
HOWARD, ROGER S., A few of the "How's" of School-keeping,	81	1843
" " on Earnestness,	59	1849
" " Defects of Common Schools,	xii.	1839
HOWE, SAMUEL G., on the Education of the Blind,	3	1836
" " Universal Language,	37	1849
House I live in, William A. Alcott,	49	1836
HOTT, J. G., on Progress of Education,	xi.	1855
HUBBARD, R. B., Defects of our Systems of Education,	203	1843
HUMPHREY, HERMAN, The Bible in Common Schools,	1	1843
HUNTINGTON, D., on the Study of the English Language,	183	1844
" " E. B., Education an Artistic Work,	129	1854
HUNTINGTON, F. D., on unconscious tuition,	101	1855
Illustrations, Visible, Utility of, Walter R. Johnson on,	67	1839
Imagination in Early Life to be cherished and devoted,	146	1832
" " as a Moral Power, how cultivated,	61	1837
" " " "	138	1839
Improvement of Common Schools, Wm. D. Swan on,	138	1849
Initiation, propriety to, appealed to as a stimulus to Study,	14	1833
Incentives to Mental Culture among Teachers,	1	1853
Incentives to Moral and Intellectual Well-doing,	73	1836
Index to Lectures, American Institute of Instruction, from 1830 to 1850,	129	1850
Infant School System, by William Russell,	97	1830
" " School-room Appliances,	105	1830
" " Moral Management of,	109	1830



	Page.	Year.
Libraries, on the circulating or itinerating plan,	153	1830
Life, incidentally a School,	4	1835
LINCOLN, L. B., on the Cultivation of a Classic Taste,	77	1839
Listener, how to be a good,	269	1837
Literary responsibility of Teachers, Charles White on,	3	1838
Living Languages, George Ticknor, on the best method of Teaching,	97	1839
Locke, John,	169	1839
Love of Knowledge, indispensable to Pupil and Teacher,	11	1835
Lowell, Proceedings of Annual Meeting at, in 1838,	1	1838
Luther, Martin, as connected with Moral Science,	165	1839
" " on Vocal Music,	941	1830
Lungs, expansion to,	49	1830
Lyceums, Nehemiah Cleaveland on,	145	1830
" S. C. Phillips on,	67	1851
MACK, DAVID, on Claims of our Age and Country on Teachers,	139	1839
MacIntosh, Peter, Resolutions and Remarks on the Character of,	xvi.	1846
MANLY, HORACE, on the Best Mode of Preparing and Using Spelling-Books,	1	1841
" " " Necessity of Education, in a Republican Government,	961	1844
" " " on Previous study indispensable to Parent and Teacher,	1	1837
" " " District School Libraries,	x.	1842
" " " Education,	vi.	1847
" " " Motives of Teachers,	vi.	1847
Man the subject of Education, Samuel G. Goodrich,	165	1838
Management of a Common School, by T. Dwight,	905	1835
Manners, objections to Public Schools in respect to,	105	1837
Manual Labor Schools, Beriah Greene on,	191	1834
Maternal Instruction, M. M. Carll on,	101	1834
Mathematics, Study of, to be commenced Early,	193	1830
" Advantage of, as a Study,	191	1830
" " Progress of, in United States,	37	1855
Mariotti, Lewis de, Education in Italy,	164	1834
Maps, Use of in teaching Geography,	84	1837
" Construction of, by the Pupils,	216	1838
MASON, CYRUS, on the Grammar School of the University of New York,	vi.	1843
MASON, LOWELL, on Vocal Music,	xv.	1833
" " on the Pestalozzian method of Teaching,	x.	1834
Massachusetts, Board of Education established in,	xxiii.	1837
MAY, S. J., on Importance of our Common Schools,	925	1843
McKEAN, HENRY S., Ends of School Discipline,	133	1835
McKean, JOSEPH, on the School System of the State of New York,	105	1852
Means and Methods of Public Instruction, Improvement in,	107	1843
Mechanical Labor in School, how provided for,	194	1834
Meditation, Habit of, to be cultivated,	207	1849
Melbourne, Viscount, on Education and Crime,	34	1834
Mental Philosophy as explained by Phrenology,	40	1843
Mental Culture in Teachers,	3	1852
" Development, Mr. Thomas P. Rodman on,	91	1847
" Philosophy, Importance of, to an Instructor,	113	1835
" " " " "	4	1842
Memory must be Cultivated,	18	1853
" Strengthened by thorough Teaching,	41	1836
" The Use and Abuse of,	xvi.	1837
" Cultivation of Philosophical,	70	1839
METCALF, JOHN GEORGE, on the Physiology of the Skin,	37	1833
MILES, HENRY A., on Natural Theology, as a Study in Schools,	107	1839
Milton, as a Teacher,	111	1854
Milton,	173	1839
Milton's Definition of Education,	7	1832
Mind and its Developments, Rev. E. Davis on,	61	1839
" Faculties of, William B. Fowle on,	41	1841
Model Schools, Thomas D. James on,	77	1836
Model of a Country, in Teaching Geography,	223	1833
Monitorial System, Henry K. Oliver on,	205	1830
" Advantage of,	205	1830
" Defect of,	217	1830
" How far applicable to Common Schools,	225	1830
Montpelier, Proceedings of Annual Meeting at, in 1850,	1	1849
Moral Education, Joshua Bates on,	51	1837
" " George B. Emerson on,	1	1849
" " Jacob Abbott on,	45	1831
" " R. C. Waterston on,	225	1835
" and Intellectual Culture, Relative Importance of,	33	1838
Influence of Physical Science, John Pierpont,	91	1832
Use of the Study of Natural History, Dr. Channing on,	255	1835
Science, Progress of, Alexander H. Everett on,	137	1839
Culture Essential to Intellectual Education,	119	1841
Responsibility of Teachers, William H. Wood on,	139	1842
Moral and Intellectual Improvement, H. B. Hooker on,	39	1846
Moral Education, Ground of all human Culture,	xvi.	1836
Moral and Religious Education, Importance of,	103	1851

	PAGE.	YEAR.
Morals and Manners of Teachers, Henry K. Oliver on, . . . . .	1	1851
Motives which should actuate a Teacher, . . . . .	71	1835
Motives to be appealed to by Teachers, Dr. Edward Beecher, . . . . .	169	1854
" " Study, E. L. Parkhurst, . . . . .	135	1831
MULLIGAN, JOHN, on the Study of the Classics, . . . . .	95	1837
Multiplication of School Books on the same subject, . . . . .	xi.	1834
MUNROE, NATHAN, on Qualification of Teachers, . . . . .	63	1848
Muscular Training, . . . . .	198	1836
Music in Infant Schools, W. Russell, . . . . .	103	1830
" " Common " Joseph Harrington, Jr., on, . . . . .	63	1838
" " " A. N. Johnson on, . . . . .	945	1845
" " William C. Woodbridge on, . . . . .	231	1830
MURREY, A. B., on Objects and Means of School Instruction, . . . . .	63	1840
" " The School-room as an aid to Self-instruction, . . . . .	109	1842
Mythology, Study of, by H. R. Cleveland, . . . . .	xvii.	1835
Narration, as an exercise in Composition, . . . . .	196	1837
Natural Language, . . . . .	39	1842
Natural Theology as taught by T. H. Gallaudet, . . . . .	152	1832
Natural History, Moral Uses of, W. Channing on, . . . . .	255	1835
" " John Lewis Russell on, . . . . .	73	1837
" " Clement Durgin on, . . . . .	207	1831
" " A. A. Gould on, . . . . .	227	1834
" " as a Study in our Seminaries, Charles Brooks on, . . . . .	143	1844
" " as a Study in Common Schools, William O. Ayres, . . . . .	119	1849
Natural Philosophy, Benjamin Hale on Teaching, . . . . .	291	1833
Natural Theology as a Study in Schools, Henry A. Miles, . . . . .	107	1839
Natural Sciences, Importance of in Popular Education, A. Gray on, . . . . .	91	1841
Nature, Study of, advocated by Dr. Worthington Hooker, . . . . .	60	1854
New Bedford, Proceedings of Annual Meeting of, . . . . .	1	1832
New England, Intellectual condition of the People, C. Cushing, . . . . .	50	1834
New Hampshire, System of Common Schools of, . . . . .	xx.	1848
New Haven, Proceedings of Annual Meeting at, in 1833, . . . . .	v.	1853
NEWMAN, SAMUEL P., on Teaching Rhetoric, . . . . .	164	1830
Newspapers, Reading of, . . . . .	41	1835
New York, School System of State of, by Joseph McKeene, . . . . .	105	1852
New York, first School established in 1633, . . . . .	109	1852
Northampton, Proceedings of Annual Meeting at, in 1830, . . . . .	1	1850
NORTHEND, CHARLES, Obstacles to greater success in Common Schools, . . . . .	63	1844
NORTHEND, W. D., Importance of Moral and Religious Education in a Republic, . . . . .	103	1851
NORTON, PROF., on the Administration of Colleges, . . . . .	150	1827
NOTT, SAMUEL, JR., on the Proper Education for an Agricultural People, . . . . .	35	1855
Obedience of Children to Authority, to be cultivated, . . . . .	17	1846
Objects, Lessons on, as an exercise in Composition, . . . . .	127	1837
Objects of Nature in relation to Early Culture, . . . . .	134	1832
Observation and Conversation in Early Culture, . . . . .	141	1832
Observing Faculties must be Cultivated, . . . . .	17	1853
Observing Faculties, Dr. Worthington Hooker on, . . . . .	38	1854
Obstacles to greater success of Common Schools, Charles Northend, . . . . .	63	1844
OLIVER, HENRY K., on the Monitorial System, . . . . .	207	1830
" " Discussion on, . . . . .	xvi.	1838
" " One of founders of Institute, . . . . .	iii.	1830
OLMSTEAD, DENISON, Observations on the School System of Connecticut, . . . . .	97	1838
" " Beau Ideal of a Perfect Teacher, . . . . .	83	1845
Order in School, how to Secure, . . . . .	80	1843
Organic Laws of Human Constitution cannot be violated with impunity, . . . . .	13	1836
Oral Instruction applicable to Lyceums, . . . . .	151	1830
Orthoepy, Method of Teaching, Mr. Mulkey, . . . . .	xiv.	1853
Owen's Educational Plan at New Harmony, . . . . .	8	1831
Outline Maps, in teaching Geography, . . . . .	230	1833
PACKARD, A. L., on the Best Method of Teaching the Ancient Languages, . . . . .	155	1833
" " Advancement in the Means and Methods of Public Instruction, . . . . .	107	1843
PAGE, DAVID P., Resolutions on Services and Character, . . . . .	x.	1848
PAGE, D. P., on Mutual Duties of Parents and Teachers, . . . . .	143	1838
FALMER, THOMAS H., on the Essentials of Education, . . . . .	79	1840
" " on the Evils of the Present System of Primary Instruction, . . . . .	211	1837
" " Prize Essay, The Teachers' Manual, . . . . .	xiv.	1830
Parents and Teachers, Coöperation of, Jacob Batchelder on, . . . . .	25	1848
Parents, Duties of, in regard to Schools, . . . . .	83	1834
" " Should feel, and awaken in others an interest in the School, . . . . .	84	1834
" " " be willing to secure and pay the best Teacher, . . . . .	85	1834
" " " coöperate with, and show an interest in " . . . . .	87	1834
" " " submit to the necessary regulations of School, . . . . .	89	1834
" " " not condemn the Teacher on the testimony of Children, . . . . .	91	1834
" " " not injure his authority, . . . . .	95	1834
" " " set the right example to Children, . . . . .	96	1834
Parents and Teachers, Mutual Duties of, . . . . .	143	1838
Parental Interest and Corporation, . . . . .	87	1844
PARKER, ABEL, on Importance of Cultivating Taste in Early Life, . . . . .	139	1846
PARK, ROSWELL, on Religious Instruction, . . . . .	101	1835
PARKER, THEODORE, on the Education of the Laboring Class, . . . . .	25	1841

	PAGE.	YEAR.
PARKER, R. G., on Teaching English Grammar, . . . . .	113	1838
" " on Teaching Composition in Schools, . . . . .	183	1837
PARKHURST, JOHN L., on Motives to Study, . . . . .	185	1831
Parsing, relation of, to Language, . . . . .	89	1853
" " to Grammar, . . . . .	129	1839
PARSONS, USHER, on the Brain and the Stomach, . . . . .	113	1840
Partiality, Complaints of, against Teachers, . . . . .	134	1840
Pascal, Blaise, Rules for Teaching Geometry, . . . . .	155	1830
Passions and Affections, Right Use of, in Education, . . . . .	164	1854
Passive Instruction, . . . . .	102	1852
PEARODY, ELIZABETH P., on Instruction in History, . . . . .	123	1850
Peabody, George, Donation to the Town of Danvers by, . . . . .	34	1852
Penmanship, Drawing as Introductory to, . . . . .	265	1830
Penmanship, B. B. Foster's Prize Essay on, . . . . .	109	1832
Perceptive Faculties, Cultivation of, J. G. Carter, . . . . .	73	1830
" " Dr. Wayland, . . . . .	29	1854
Perfect Teacher, Beau-Ideal of a, Prof. Olmstead, . . . . .	83	1845
PERRY, G. B., on Primary Education, . . . . .	97	1833
Personal Duties, part of the Moral Education of Children, . . . . .	25	1842
" Habits in the School-room, Mr. Thayer's Lecture, . . . . .	93	1840
Pestalozzi, Life and Character of, by H. Krüsi, . . . . .	27	1853
" Method of Instruction, . . . . .	180	1830
PHILBRICK, JOHN D., on School Government, . . . . .	97	1848
" " on the Characteristics of the True Teacher, . . . . .	69	1850
" " on Advancement of Common School Education, . . . . .	vii.	1853
PHILLIPS, S. C., on Usefulness of Lyceums, . . . . .	67	1830
Philology, Study of, Prof. Fuller, . . . . .	308	1830
Phonetics, Discussion on, . . . . .	vi.	1852
Phonography and Phontypy, Stephen P. Andrews on, . . . . .	167	1846
Phrenology, Discussion on, its Importance to Teachers, . . . . .	xii.	1833
" As a Branch of Education, by Dr. Barber, . . . . .	xxi.	1834
Physical Education D. Griggs, on, . . . . .	xx.	1834
Physical Education, D. H. Kanney on, . . . . .	203	1851
Physical Education, Dr. Warren on, . . . . .	205	1830
Physical Education, Dr. Pierson on, . . . . .	205	1839
Physical Science, Moral Influence of, John Pierpont on, . . . . .	91	1832
Physiology, the Importance of, Dr. Reynold's on, . . . . .	41	1833
" Necessity of the Study of, Edward Jarvis on, . . . . .	111	1845
" Human, William A. Alcott on, . . . . .	49	1836
" of the Skin, George Metcalf on, . . . . .	37	1839
" of the Brain and Stomach, Usher Parsons on, . . . . .	113	1840
Pictures, Use of, in Early Education, A. B. Alcott, . . . . .	160	1832
" Discussion on, . . . . .	xiii.	1834
PIERCE, CYRUS, on Reading, . . . . .	143	1843
" " on Crime, . . . . .	xiii.	1853
" " on Moral Education, . . . . .	ix.	1855
PIERPONT, JOHN, on Moral Influences of Physical Sciences, . . . . .	91	1833
PIERSON, A. L., on Physical Education, . . . . .	205	1839
Pittsfield, Proceedings of Annual Meeting at, in 1843, . . . . .	1	1849
Plato, on the value of Vocal Music, . . . . .	242	1830
Play, as an element of Early Education, . . . . .	132	1832
Play-ground essential to an Infant School, . . . . .	106	1830
Plymouth, Annual Meeting at, in 1846, . . . . .	v.	1846
Plymouth, Proceedings of Annual Meeting at, in 1846, . . . . .	1	1843
Political Economy as a Study for Common Schools, . . . . .	25	1850
Political Influence of School Masters, E. Washburn on, . . . . .	63	1835
Popular Education, Objections to, . . . . .	11-31	1834
POTTER, ALONZO, Introductory Address in 1842, . . . . .	v.	1839
Portland, Proceedings of Annual Meeting at, in 1844, . . . . .	1	1844
Postures of Pupils when seated, . . . . .	43	1830
Practical Education, W. C. Goldthwait on, . . . . .	193	1849
Praise, love of, as a motive to Study, . . . . .	15	1840
Prize Essay on Construction of School-Houses, by Wm. A. Alcott, . . . . .	241	1831
" " on Teaching of Penmanship, by B. B. Foster, . . . . .	109	1832
" " on Symmetrical Development of the Faculties, E. A. H. Allen, . . . . .	3	1840
" " on the System of Common Schools for our country, . . . . .	xiv.	1840
" " on Crime, its Cause and Cure, C. Pierce, . . . . .	ix.	1853
Prizes, as a stimulus to Study, . . . . .	139	1836
" Moral bearings of, . . . . .	85	1835
Primary Education, G. B. Perry on, . . . . .	97	1833
Primary Education, Evils of the Present System of, . . . . .	211	1837
Primary Schools, How to be benefited by Infant School System, . . . . .	117	1830
Private and Public Schools, Comparative Merits of, Theodore Edson on, . . . . .	93	1837
Private Schools, Advantage of, . . . . .	101	1837
Professional Education of Teachers, . . . . .	xvii.	1836
Prohibitions, part of a School Code, . . . . .	85	1840
Providence, Proceedings of Annual Meeting at, in 1854, . . . . .	v.	1854
Prussian System of Schools, by Mrs. Austin, . . . . .	xi.	1835
Public and Private Schools, Comparative Merits of, by Theodore Edson, . . . . .	93	1837
Public Instruction, Advancement in the Means and Methods of, . . . . .	107	1843
Punishment, Undue Severity of, . . . . .	137	1840
" the best for the best Moral Effects, . . . . .	x.	1835





	PAGE.	YEAR.
Schiller, Extracts from, on Sympathy with Genius, . . . . .	7	1839
School Discipline, Joseph Hale on, . . . . .	183	1844
School, Home Preparation for, Jason Whitman on, . . . . .	1	1846
School Government, John D. Philbrick on, . . . . .	97	1848
School Architecture, Barnard's Treatise on, . . . . .	198	1848
"    "    Mann's Report on, . . . . .	119	1843
"    "    Perry's Essay on, . . . . .	119	1843
School Libraries, recommended, . . . . .	xiii.	1839
"    "    Utility of, discussed, . . . . .	xiv.	1837
School-rooms and Furniture, Wm. J. Adams on, . . . . .	335	1839
School-houses, Wm. A. Alcott's Prize Essay on, . . . . .	941	1831
School-houses, Size and Ventilation of, by Wm. C. Woodbridge, . . . . .	961	1831
School-houses, Rev. Wm. Woodbridge's Communication on, . . . . .	973	1831
School-Masters, Political Influence of, . . . . .	63	1835
School Discipline, Ends of, Henry S. McKoon on, . . . . .	133	1835
School Reform, Charles Brooks on, . . . . .	161	1837
School System of Connecticut, Dennison Olmstead on, . . . . .	97	1836
School Instruction and Discipline, Results to be aimed at in, . . . . .	29	1840
School Instruction, Object and Means of, A. B. Muzzey on, . . . . .	63	1840
School-room an aid to Self-education, A. B. Muzzey, . . . . .	169	1849
School-keeping, Roger S. Howard on, . . . . .	81	1843
Schools, Obstacles to Greater Success in, . . . . .	63	1844
Schools, Improvement of, Wm. D. Swan on, . . . . .	125	1848
Schools, Public Duties of Legislatures in relation to, . . . . .	173	1849
Schools, Supervision of, D. B. Hagar on, . . . . .	41	1851
Schools, Common, Present Condition and Wants of, . . . . .	163	1851
Schools, Classification of, Samuel Burnside on, . . . . .	73	1833
Schools of the Arts, W. Johnson on, . . . . .	273	1835
Schools, Common, Management of, T. Dwight, Jr., on, . . . . .	205	1835
Schools, Public and Private, Comparative Merits of, Theodore Edson, . . . . .	93	1837
Schools, Model, Thomas D. James on, . . . . .	77	1838
Schools, Duty of Visiting, Thomas A. Greene on, . . . . .	37	1840
School Instruction, Connection of Country with, G. F. Thayer on, . . . . .	83	1840
Scholarship for Teachers in High School, . . . . .	xviii.	1853
Scotland, Secret of the Success of the Education of, . . . . .	54	1849
SHEDD, PROF., Position of Colleges in a System of State Education, . . . . .	vi.	1849
SHERWIN, THOMAS, on Teaching the Elements of Mathematics, . . . . .	139	1834
"    "    Power of Example, . . . . .	vi.	1848
"    "    Remarks at Bath, . . . . .	v. xix.	1855
Sight, Education of, The Sense of, S. J. May, . . . . .	95	1864
Simplicity of Character as effected by the Common Systems of Education, . . . . .	137	1841
Skin, Physiology of the, John George Metcalf on, . . . . .	37	1839
SMITH, ELBRIDGE, on Classical Culture, . . . . .	68	1854
SMITH, J. V. C., on the Mechanism of the Organs of Sense, . . . . .	xvi.	1834
Social Affection among Pupils, Importance of Cultivating, J. Blanchard, . . . . .	155	1835
Social Duties, to be cultivated in School, . . . . .	17	1849
Society, as an Agent in Education, . . . . .	131	1832
SPEAR, WILLIAM H., on Recitations and Questions in Text-Books, . . . . .	xiv.	1832
Speculative Impulses must be Cultivated, . . . . .	13	1853
Spelling, Methods of Teaching, by C. A. Greene, . . . . .	181	1851
Spelling and Defining, Gideon F. Thayer on, . . . . .	125	1830
"    "    Utility and necessity of Correct, . . . . .	125	1830
"    "    Defective methods of Oral, . . . . .	137	1830
"    "    Should be taught mainly by Writing, . . . . .	129	1830
"    "    be given mainly from Reading Books, . . . . .	130	1830
Spelling Books, Best Method of Preparing and Using, Horace Mann on, . . . . .	1	1841
Spine, Common distortion of, in Females, Dr. Warren, . . . . .	34	1830
"    "    Moral Causes of, . . . . .	36	1830
"    "    Physical " . . . . .	40	1830
Spies, or informing of each other among Pupils, . . . . .	32	1842
Springfield, Proceedings of Annual Meeting at, in 1839, . . . . .	1	1839
Spiritual Culture in Schools, R. C. Waterston, . . . . .	235	1835
Spiritual Impulses, as motives to Action, . . . . .	76	1836
Stanz, Scene of Pestalozzi's Labors, . . . . .	38	1853
STONE, T. D. P., on Teaching Elocution in Schools, . . . . .	137	1836
STORY, JOSEPH, on the Science of Government, as a Study in Schools, . . . . .	249	1834
STOWE, CALYB E., Religious Element in Education, . . . . .	73	1834
Stewart, Dugal, on the Object of Education, . . . . .	19	1830
Study, Motives to, without the aid of Emulation, . . . . .	125	1831
SULLIVAN, WILLIAM, Introductory Lecture by, . . . . .	3	1833
Superintendent of Common Schools, Memorial to Legislature respecting, . . . . .	xxiv.	1836
Superintendent of Schools in each State, . . . . .	5	1854
Superintendent of Schools in each City, . . . . .	6	1854
Supervision of Schools should be Improved, . . . . .	1	1834
"    "    Lecture on, by D. B. Hagar, . . . . .	41	1851
Swabian Teacher, instance of whipping a boy, . . . . .	82	1831
SWAN, WILLIAM D., on Improvement of Common Schools, . . . . .	125	1846
"    "    on the Duties of Teachers, . . . . .	xv.	1853
"    "    on the Educational Services of Barnum Field, . . . . .	xvii.	1851
Switzerland, Condition of Education in, . . . . .	x.	1850
"    "    W. A. Brooks, . . . . .	113	1831



	PAGE.	YEAR.
Vocal Music, Testimony to the Value of, by Pfeiffer, . . . . .	246	1830
" " Principles of Pestalozzian Method, . . . . .	252	1830
Voice, Cultivation of, . . . . .	xx.	1831
" " . . . . .	198	1837
" Philosophy of, . . . . .	244	1837
Voluntary Courses in Colleges, . . . . .	29	1832
Visible Illustrations, Utility of, . . . . .	65	1833
Visitatorial Power of Colleges, . . . . .	142	1837
Visiting Schools, Duty of, Thomas A. Greene, . . . . .	57	1840
WALKER, AMASA, Political Economy a Study for Common Schools, . . . . .	25	1850
WALKER, JAMES, Introductory Lecture, (Accidental Education,) . . . . .	3	1831
Walking in the open air, D. Warren, . . . . .	43	1830
WARREN, JOHN C., on Physical Education, . . . . .	25	1830
WARREN, GEORGE W., on the Characteristics of the Good Teacher, . . . . .	xvii.	1838
WASHBURN, EMERY, on the Political Influence of Schoolmasters, . . . . .	63	1835
WATERSTON, R. C., on Moral and Spiritual Culture, . . . . .	235	1855
WATLAND, FRANCIS, Introductory Discourse in 1833, . . . . .	1	1830
" " Introductory Discourse in 1854, . . . . .	1	1854
" " on the Study of Language, . . . . .	1	1847
" " Objects of Intellectual Education, . . . . .	4	1830
" " Education a Science, . . . . .	19	1830
" " Manner in which Mind should be Trained, . . . . .	14	1830
" " on Text-Books, . . . . .	18	1830
" " on a Prevalent Error in Education, . . . . .	19	1830
" " on the Study of the Ancient Languages, . . . . .	21	1830
" " " Mathematics, . . . . .	22	1830
" " on the Dignity and Rewards of Teaching, . . . . .	23	1830
" " on the Progress of Education since 1830, . . . . .	2	1854
" " on Gradation of Schools, . . . . .	2	1854
" " " on Appointment of Superintendents, . . . . .	6	1854
" " " on Mode of Teaching, . . . . .	7	1854
" " " on School Apparatus, . . . . .	8	1852
" " " on School Hours, . . . . .	10	1854
" " " on Normal Schools, . . . . .	11	1854
" " " on Teachers' Institutes, . . . . .	12	1854
" " " on Teachers' Wages, . . . . .	13	1854
" " " on Attendance of Children at School, . . . . .	14	1854
" " " on School and Village Libraries, . . . . .	16	1854
" " " on School Journals, . . . . .	16	1854
" " " How may Education be still more Improved, . . . . .	18	1854
" " " Progressive development of the Faculties, . . . . .	19	1854
Webster, Daniel, True Influence of Learning, . . . . .	121	1835
" " Influence of the Bible on New England, . . . . .	23	1843
Webster, Noah, Tribute to, by Mr. Thayer, . . . . .	137	1830
WELD, A. H., on Classical Instruction, . . . . .	163	1842
WELLS, WILLIAM H., on Self-reliance, . . . . .	83	1854
Well-doing, Incitements to Intellectual and Moral, . . . . .	71	1836
Well-wishing, . . . . .	75	1836
WESTON, E. F., on Education of Daughters, . . . . .	73	1835
West, Influence of Social Relations in the, upon Professional Success, . . . . .	92	1852
WHEELER, CHARLES H., on Essential Elements of American Education, . . . . .	131	1850
Whipping-boy to a King's Son, . . . . .	14	1852
Whispering in School, How to be Managed, discussion on, . . . . .	vi.	1845
WHITAKER, WILLIAM J., on Drawing as a Means of Education, . . . . .	15.	1853
WHITE, E., Introductory Discourse, . . . . .	3	1837
WHITE, CHARLES, on Literary Responsibility of Teachers, . . . . .	3	1838
WHITE, ELISHA, on Condition of Common Schools in the South, . . . . .	xv.	1832
WHITMAN, J., Home Preparation for School, . . . . .	1	1845
WINSLOW HUBBARD, on Innovations in Education, . . . . .	169	1834
WINES, E. C., on Girard College, . . . . .	85	1842
WILLARD, SIDNEY, on English Composition, . . . . .	xviii.	1835
Williams, Judge, on the Advantages of Lycœums, . . . . .	159	1830
WITHINGTON, LEONARD, on Emulation in Schools, . . . . .	131	1833
WOODBRIDGE, W. C., on Vocal Music, . . . . .	231	1830
" " on the Size and Ventilation of School-rooms, . . . . .	261	1831
" " on the best Mode of Teaching Geography, . . . . .	219	1833
" " on Juvenile Population of the United States, . . . . .	xiii.	1833
Woodbridge, Rev. W., Communication on School-houses, . . . . .	271	1831
WOOD, W. H., Moral Responsibility of Teachers, . . . . .	139	1843
Woman, her interest in a better Education, C. Cushing, . . . . .	29	1834
Worcester, Proceedings of Annual Meeting at, in 1837, . . . . .	1	1837
Words, Meaning of, how taught to Young Children, D. Howe, . . . . .	58	1849
Words on Teaching before Letters, in learning to Read, discussion on, . . . . .	vii.	1841
" " " H. Mann, . . . . .	13	1841
" " " C. Pierce, . . . . .	156	1843
" " " Objections to, S. S. Greene, . . . . .	294	1844
Written Reviews, . . . . .	103	1859
WYMAN, EDWARD, on Influence of Social Relations in the West, . . . . .	92	1850
Wytenbach, on the Reperusal of Demosthenes, . . . . .	116	1854
Young, Samuel, on the Reading of the New Testament, . . . . .	25	1843

**INTRODUCTION TO THE STUDY OF ART**, by M. A. Dwight. 12mo., New York: D. Appleton & Co.

There are various indications in our country that the love of the Fine Arts is continually advancing. Costly paintings, by ancient and modern artists, find ready purchasers; print shops are on the increase; a demand is felt in manufacturing communities for good designers; and, finally, many schools, both private and common, have begun to consider drawing as a proper part of even an elementary education.

Many persons, however, interested, as teachers or scholars, in the study of art, have felt the need of a good manual, in which the principles of taste, and the laws of design should be briefly and clearly set forth. Such a hand-book has now been prepared by Miss Dwight. Herself a thorough scholar, an admirer of all that is beautiful in nature and art, and, more than that, a successful teacher of practical drawing, she has written a volume which will be welcome in any family or school where the crayon has found its way, or where an inquiring mind is seeking for those principles by which to appreciate, with discriminating taste the varied productions of human genius.

As her book is only an "Introduction to the Study of Art," it is mainly devoted to the laws of line and perspective, light and shade, color, composition, expression, and kindred topics. There are valuable introductory chapters on the anatomy of the human frame, and a full and excellent statement of the meaning of symbolic colors and emblems. Should this volume meet with the success which it deserves, there are reasons to expect that it will be followed by other works of a corresponding character. Its general introduction into our higher schools and especially into seminaries for young ladies, would awaken a love for artistic pursuits, where it does not yet exist, and would correct the taste and improve the judgment of those who are already alive to the study of the beautiful.

#### EDUCATIONAL MEETINGS IN AUGUST.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF EDUCATION will hold its Sixth Annual Meeting at Detroit, Michigan, commencing on Tuesday, August 12th, at 10 A. M., and continuing in session through the following Wednesday, Thursday, and Friday. Introductory Address by Henry Barnard, the retiring President. Papers will be read and addresses delivered by Dr. Tappan, Prof. Boise, Prof. Haven, of the University of Michigan; Prof. Gillespie, of Union College; Pres. Dr. White, of Wabash College; Rev. Dr. Spees, of Milwaukee; Prof. Turner, of Illinois College; Prof. Barnard, of University of Mississippi; Pres. Dawson, of McGill College, Montreal; Prof. Cooke, of Bloomfield, New Jersey, and others.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will hold its Twelfth Annual Meeting at Albany, New York, commencing on Wednesday, August 20th. The exercises, it is understood, will be of a more than ordinarily interesting character.

THE AMERICAN INSTITUTE OF INSTRUCTION will hold its *Twenty-seventh Annual Meeting* at Springfield, Mass., on the 19th, 20th, and 21st of August. Introductory Address by President Walker, of Cambridge. [We have not received the Programme of Exercises.]

THE  
American Journal of Education.

No. VI.—SEPTEMBER, 1856.

I. COMMON OR PUBLIC SCHOOLS IN THE UNITED STATES.

HAVING exhibited in the Journal for March and May, the magnitude of the educational interest of the United States, in a series of statistical tables made up from the census returns of 1850, showing the aggregate and juvenile population of the several states, the number of educational institutions of different grades, with their teachers, pupils and annual cost, the number of persons returned as not having received the lowest form of instruction; and having in a subsequent number presented the statistics of institutions supported wholly or partly by the avails of public funds or taxation in each State, we now proceed to give the condition of the Common or Public Schools, with the means and suggestions for their improvement, as set forth in extracts from official and legislative documents and addresses. These extracts should be read in connection with the statistics of population, &c., before given.

ALABAMA.

*Report of the Superintendent of Education [W. F. Perry] of the State of Alabama, to the Governor, Oct. 1, 1855. 86 pages.*

This is the first Report of the Superintendent of Education, and is confined to an account of preliminary operations.

**DIFFICULTIES IN ORGANIZING AN EFFICIENT SYSTEM.** The building up of an efficient educational system, adapted to the various wants and circumstances of a large community, has never been accomplished, hitherto, but by the patient, unremitting efforts of successive years. The experience of other states abundantly proves that liberal appropriations and legislative enactments can not, of themselves, impart to such a system that vitality and energy which are essential to its ultimate success. It must rely mainly for these upon enlightened public opinion,—upon a rational, all-pervading interest on the subject, which springs not up spontaneously or from sudden impulse, but is itself the result of a sort of process of education, by which the whole people are brought to esteem the proper training of those who are to come after them, as their paramount duty and highest earthly concern.

**EDUCATIONAL FUNDS.** The two funds placed under his control, under the general title of Educational Fund, were created at different times, were subject to different laws, and sustained different relations. One was the property of the State, consolidated and unchanging in amount; the other belonged to the town-

No. 6.—[VOL. II. No. 2.]—17.

ships in their individual capacity, distributed among them in all possible amounts, ranging from a few cents per annum to many hundreds of dollars, and was constantly accumulating. A small portion of the latter was still under the management of the banks; another and much the larger was in the treasury; a third, in the form of sixteenth section notes, was found in the office of the Comptroller of Public Accounts, and scattered over the State in the hands of trustees, withheld under special laws, or in defiance of law.

To unite these two funds thus situated, and bring them under one general system of accounts which would do full justice to all, and more than justice to none, cost an amount of thought and labor, which he had not been prepared to expect, and which few, perhaps, can now realize.

**VISITATION BY SUPERINTENDENT.** The superintendent has thus far found time to traverse forty-five out of fifty-two of the counties, generally delivering two addresses in each, and has it in contemplation to visit the remainder before his term of office expires. These visits, though hurried, and often unavoidably made at the most unfavorable times for obtaining audiences, and enlisting public attention, are believed to have been attended with advantage by no means inconsiderable.

**RESULTS OF PERSONAL OBSERVATION.** That which most prominently strikes the attention of one favored with such a field of observation, is the total inadequacy of the means hitherto employed, ever to accomplish what all acknowledge to be desirable—a general diffusion of knowledge.

Alabama, it is true, can point with just pride to her colleges and high schools, her institutes and academies. Perhaps in no State of the South have individual citizens and communities exhibited more liberality of sentiment. No where have greater personal exertions and sacrifices been made to advance the interests of education. The undersigned would be the last to stifle such sentiments, or to disparage the benefits which have resulted from those sacrifices and exertions. The melancholy reflection still, however, obtrudes itself, that three-fourths of the youth of the State have hitherto either gone without instruction entirely, or have been crowded into miserable apologies for school-houses, without comfortable seats, without desks or black-boards, often without the necessary text-books, and still oftener without competent teachers.

It would be the grossest arrogance to say that the adoption of the present system has supplied all these wants. It has certainly imparted a powerful impulse to the common school operations of the State. It has increased the attendance upon most of the schools previously kept up, and has led to the establishment of many, where none before existed. But the improvement thus far, is in the *extent* to which educational facilities have been diffused, rather than in the *character* of the facilities themselves. The increase of the school fund may have crowded the houses, but it has not always dispelled blank cheerlessness from its old dominion. It has not led to the adoption of the policy which controls men under an increase of private gains—to pull down the old barns and build greater. It has added largely to the demand for teachers' services; but it has not imparted the necessary qualifications to those who are engaged in the mighty field of labor. "Owls and bats" are still employed "to teach young eagles how to fly, because they will work cheap."

There is another conviction to which the undersigned has been forced by extensive intercourse and correspondence with the masses of the people. It is that the present educational movement is not in advance of public sentiment—that the people of the State, by an overwhelming majority, are favorable to the principle of public education, and are prepared to sustain the legislature in all judicious measures for giving additional efficiency to the system already in existence.

**REASONS FOR PERSEVERANCE.** The following propositions are, in conclusion, respectfully submitted, as containing some of the more prominent considerations in favor of the permanent adoption of that line of policy by the State:

1. The intervention and effort of society in its organized political capacity, constitutes the only means by which a universal diffusion of knowledge can ever be secured. Neither the history of the past, nor the circumstances of the present, reveal any other agency adequate to its accomplishment. The question of a continuance or discontinuance of such effort here, amounts to a direct issue between general intelligence on the one hand, and wide spread, deplorable ignorance on the other.

2. No obstacles in the way of the ultimate attainment of this great object exists in Alabama, which have not been encountered and triumphed over in other States. Indeed the achievements of the present year will challenge comparison with what has ever been accomplished, elsewhere, with the same means and in the same length of time.

3. General intelligence and virtue are included in the very idea of a govern-



ment where the people are the great depositories of power, and the ultimate tribunal to which all questions of national policy are referred. "They who govern, must know how to govern; and they who govern rightly must themselves be right." Mr. Mansfield says, "There is a positive antagonism between the possession of civil power requiring the highest exercise of reason, and the want of that intelligence and integrity, which are essential to the right use of reason itself."

It will not be considered improper to introduce in this connexion, the opinion of one of the founders of the government, and the great republican philosopher of his day. Mr. Jefferson, in a letter to Col. Yancey, January 16, 1816, uses this language: "If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be. The functionaries of every government have propensities to command at will, the liberty and property of their constituents. There is no safe deposit for these but with the people themselves; nor can they be safe with them, without information. When the press is free and every man able to read, all is safe."

4. Aside from the overwhelming motives of self-preservation, which apply to nations as to individuals, every consideration of sound domestic economy demands at the hands of government a liberal encouragement of the means of education. The State that scatters broadcast the seeds of knowledge most profusely, will ever reap the richest harvest of golden fruit, in the increased thrift and industry, prosperity and happiness of its people.

5. And finally, it is not an invasion of the rights of property for the government to assess upon each individual his share of the expenses of educating the children of the community, up to such a point, as the nature of the institutions under which he lives, and the well-being of society require.

To perfect the system of Public Schools, the Superintendent recommends the appointment of a single Commissioner instead of the Board, for each County; the publication at the capitol of a Monthly Educational Journal; the holding of Teachers' Institutes, and the establishment of a State Normal School.

#### ARKANSAS.

We have received no school document, official or legislative, relative to the Public Schools of this State.

#### CALIFORNIA.

*Fifth Annual Report of the Superintendent of Public Instruction* [Paul K. Hubbs] of the State of California. January 17, 1866.

**CONDITION OF PUBLIC SENTIMENT.** Public sentiment was never more thoroughly aroused than at the present time, in respect to the subject of education. From the Colorado to the Klamath, from the Nevada Alps to the ocean, the most distinguished citizens of this State are laboring to extend the influence and elevate the condition of the common school.

With this healthy state of the public mind, and in view of the fact, that we are, in respect to common school education, not only very far in arrear to our Atlantic brethren, but also to civilized Europe, there never has been a time when the support of the representatives of the people to this great effort was more imperiously called for.

**SCHOOL FUND.** We are nominally possessed of a large school property, but practically do not receive enough income to pay the salaries of three hundred and six teachers for two weeks' work in the six months of their labor, for which the small sum of \$38,269.60 was apportioned by the State Board of Education on the 1st instant, being the entire income to the State School Fund for the past half year.

**SCHOOL ATTENDANCE.** The Annual Report from this department to the Legislature of 1865, held this language; "Three-fourths of the children of our State are growing up devoid of learning to read or write." "So far from expecting a future increase proportioned to the imminent wants of this great community, it is evident that without radical and positive change in the supplies, by legislative action, we shall have a meager return for the present year from the schools, many of which are now being abandoned for lack of support." The Legislature of 1865, did not extend the aid solicited from this department, and many schools have been abandoned for lack of support. In the city of San Francisco, where the effort to sustain common schools has deservedly won her a world-wide reputation, (and as a natural consequence amid all her disasters, put her bonds at a premium,) in that

city there is a daily average of 2,998 children reported out of school; and in the county districts of San Francisco, forty-five only of four hundred and nine are in the school. In Stockton, nearly one-half are in daily average attendance. Sacramento City, two in five; and Marysville, but one in three—no doubt in many cases owing to the wilful neglect (if so mild a term can properly be used,) of the parent or guardian. In some places, as will appear by the appendix, but one in seven are in daily attendance at the school.

Of the 26,170 resident children reported, 6,422 form the daily average attendance at the common schools. The private schools will not probably increase the number beyond 7,000 in all. What is to be done with the 19,000? They are under the charge of this department, subject to legislative action.

**SCHOOL LANDS.** It is the sheerest folly to talk about our great resources in public school property, whilst no proper measures are taken to secure it from loss, much less to realize the income due from it.

The Act of Congress in relation to survey and pre-emption, (March 3d, 1853,) provides, that two sections of every thirty-six, when surveyed, be set apart for the school purposes of the township.

Of the 500,000 acres donated under the Act of Congress, April 4th, 1841, and diverted by our Constitution to school purposes, the greater part remains undistributed.

The aid to the University that we hope some day to see established, from lands donated by the General Government, like that from nearly all the school lands, continues a deferred hope, upon which the mind may look at at so great a distance as to realise little else than the clouds that environ it.

**SEMINARY LANDS.** The Seminary lands awaiting only the U. S. surveys, to be fully and conclusively located, I recommend to be placed at once under the entire title, control, and management of the Board of Regents of the University, which I can not doubt the Legislature will provide for at an early day, in "An Act to establish the California State University."

**SCHOOL LAW.** We have no free school system. Cities are empowered, under certain restrictions, to raise means, and, to a certain extent, maintain free schools. The counties may or may not levy a limited tax, to maintain schools, depending upon the views of the Board of Supervisors, a board that has done more good in checking extravagant county expenditures, than was anticipated, even by the best friends of the supervisory system; but with heavy old county debts too often pressing upon them, they are timid, and too frequently parsimonious in respect to the schools. In some densely settled counties, no tax whatever has been levied for school purposes; moreover the supervision of the accounts for school expenditure of the county, is not as thorough by the Board of Supervisors as could be desired, otherwise the returns to this department would be more explicit and satisfactory.

**SCHOOL BOOKS.** Immediately upon entering upon the duties of this office, I designated, in accordance with the Act, a uniform series of books to be used in the schools. The recommendation has not been sustained, and the Superintendent has no power to enforce it. The books designated comprised the very latest and most improved works used in the Atlantic States; but our bookstores were so crowded with the refuse books thrown out at the East, at low prices there, at least, that the most valuable works, adapted to the advanced progress of the common school system, could scarcely be had.

**SECTARIAN ACTION.** The Superintendent has no adequate power under the existing law, to check as should be done, any sectarian bias or control, exercised upon the public schools. A sectarian war is in embryo, which if not quieted at once, will, combined with other causes, produce a lingering death, slowly but surely, to popular education in this State. The rejection of well qualified teachers at one time, because of their religious faith, produces a reacting opposite extreme at another time, and the whole catalogue of sects become excited to have their own members used as teachers, and their own churches as school houses. This is all wrong, and the result will be disastrous.

**DENOMINATIONAL COLLEGES.** Whilst we thus maintain intact, steadily but firmly, the proper administration of the common school system, let us not undervalue the efforts making by, emphatically, the good men of our land, in rearing colleges worthy the support of the State, though established by religious influence and controlled by religious domination. Three colleges have been chartered in accordance with law during the past year: one at Santa Clara, under charge of the Methodist Society; one at Oakland, under charge of the Presbyterian Church, and one at San Jose, under care of those who profess the Catholic faith. They

are all struggling in their infancy, but destined to much good. I recommend that a liberal appropriation be made to each of these colleges.

### CONNECTICUT.

*Report of the Superintendent of Common Schools [John D. Philbrick] to the General Assembly, May, 1866.* 198 pages.

This document, besides the Annual Report of the Superintendent, embraces an Appendix of great value, viz., Reports of Visits and Educational Lectures by Agents appointed by the Superintendent; Extracts from School Visitors (Local Committee of Supervision) Reports; An Educational Tract—a Teacher's Appeal to the Parents of his Pupils; Circular to School Visitors respecting certain proposed changes in the School Laws; An Argument for Free Schools from Horace Mann's Tenth Report as Secretary of Massachusetts Board of Education; Places and Descriptions of School-houses; Specimens of Rules and Regulations for Schools; Inquiries addressed to School Visitors; Tables of Returns by School Visitors; List of Teachers' Conventions or Institutes held in Connecticut since 1858.

**LABORS OF SUPERINTENDENT.** These include personal attention and teaching in the Normal Schools; preparation for and conducting eight Teachers' Institutes; delivering addresses in different counties; answering questions as to the construction of the School Law; deciding claims for payment of public money forfeited; consulting with teachers and committees; assisting in a revision of the School Law, and in editing of the Common School Journal. It is not to be wondered at, that the health of the Superintendent should have broken down under these manifold and arduous labors.

**TEACHERS' INSTITUTES.** Eight Institutes were held, one in each county, with an attendance of 735 members. The added experience and observation of another year tend to confirm the favorable opinion I have heretofore entertained in relation to Teachers' Institutes. If rightly conducted, they are instruments of much good, not only to the teachers in attendance, but also to the communities in which they meet. A recent writer has, very appropriately I think, called them "distributing offices," by means of which the various improvements in teaching and school management are disseminated through all parts of the State.

**STATE NORMAL SCHOOL.** This institution has continued in a prosperous condition during the past year, and it is believed that each year adds to the conviction that its establishment was the result of a true foresight. During the last winter, the number in attendance was unusually large, being one hundred and eighty.

Many of the graduates of this school are making themselves eminently useful as teachers, and a few are at the head of some of our largest and best graded schools.

During the past year nearly four hundred of the teachers employed within the State have been, for a longer or shorter period, members of the State Normal School, and many of these have given a high degree of satisfaction.

**EDUCATIONAL TRACTS.** About 1000 copies of an excellent Tract on the consolidation of districts, was printed and circulated gratuitously. Nearly 5000 copies of another Tract, entitled "A Teacher's appeal to the parents of his pupils," have been printed and circulated at a trifling charge.

It was thought that these little messengers, if sent abroad, would find an audience with many who would not, otherwise, give a listening ear or lend a co-operating hand in behalf of the great work in which we are engaged.

Having great confidence in the efficacy of this mode of operating upon the people, I would most respectfully and earnestly urge that a reasonable sum may be appropriated for the purpose of enabling me to avail myself, still more extensively, of this great, but effectual, way of awakening interest and securing right action.

**COMMON SCHOOL JOURNAL.** The Journal has been regularly published during the past year, and the several numbers have been sent to the acting School Visitors in the various localities, in accordance with provision made by the General Assembly. I am confirmed in the opinion that it is a highly important and useful auxiliary in the educational department. Going, as it does, into every School

Society of the State, it proves a highly valuable medium for the diffusion of intelligence in relation to schools, methods of teaching, &c.

If an appropriation should be made whereby a copy of the Journal could be sent to every School District within the limits of the State, I feel convinced that the result would be so favorable and extensive, as to afford ample assurance that the investment was a judicious one.

**EDUCATIONAL LECTURES.** The provision whereby the Superintendent is authorized to cause an address, on the subject of Common Schools, in each of the School Societies of the State, is deemed a very important one, and eminently calculated to diffuse correct ideas and to awaken an interest on the part of the people. Whatever efforts shall tend to bring the great and important interests of popular education directly before the minds of the people, and cause them to reflect upon the subject, cannot fail of producing highly beneficial results.

**TEACHERS.** A good school is the product of the combined and harmonious operation of various agencies. Of these, by far the most important is the teacher, so that the apparently extravagant maxim, "as is the teacher so is the school," is essentially true. The teacher is to the school as the engineer to the engine—the master to the vessel—the commander to the army. School-house, text-books, apparatus, classification, attendance, supervisory officers, may possess every requisite of excellence, and yet, for the want of a suitable teacher, the school may be but a name. No good instruction will be given, no good habits formed, no moral or mental discipline imparted, no desire for knowledge inspired, and all the costly and careful preparation for education, will avail but little in the hands of an incompetent teacher. On the contrary, the accomplished teacher will almost create a good school in the face of every obstacle. Pupils can not come in contact with him without being bettered. His power and skill will turn the very defectiveness of the means employed, into the means of improvement.

**COMPENSATION OF TEACHERS.** Called to perform duties of the most arduous, responsible and important nature, teachers are entitled to a rate of compensation as great as the same talents and devotion would secure in any other department. I would not be understood as advocating any degree of extravagance on this point, but would simply contend that if the business of training the immortal mind is as important as any other, then the inducements for those who engage in the work should be equal to those held out in any other department of labor.

The average wages of female teachers, is about \$17 per month, from which, if we deduct \$2.50 per week for board, we shall have only \$7 for the poor teacher in return for four weeks of earnest and devoted labor. And, I would ask the candid and intelligent citizens of our State, if this looks like true liberality or true wisdom? Will this small rate of compensation secure a high order of talent? Will it warrant the expenditure of time and money essential for a proper course of preparatory training?

**CO-OPERATION WITH TEACHERS.** However important and weighty the teacher's duties and responsibilities may be, and however faithfully they may be met, they can never compensate for deficiency on the part of parents and citizens. I have time now only to designate a few particulars in which parents may co-operate with teachers in the great work of education, and thus indicate their appreciation of the true importance of their vocation.

1. By securing the constant and reasonable attendance of pupils.
2. By a reasonable compensation to teachers, cheerfully and promptly rendered.
3. By a seasonable and full supply of the necessary text books, and all necessary apparatus.
4. By encouraging in the pupils habits of diligence and obedience.
5. By cultivating a friendly acquaintance with teachers.
6. By visiting the schools.

**SCHOOL-HOUSES.** The school-house everywhere stands out as the symbol and exponent of education. It is a visible and palpable index of the popular sentiment on the subject. Where there is not sufficient interest to build a good school-house, it is idle to look in that place for other elements of a good school. If the old house as it was, with all its inconveniences and discomforts, is thought to be good enough, the old price for teachers is good enough, the same old books are good enough, four months schooling a year is enough.

During the year forty-one new school-houses were erected, at an expense of \$120,000. In some of the districts where the spirit of progress has triumphed, and the old structure has given place to the new, a degree of perseverance and energy has been exhibited, rising almost to heroism. In one, fifteen meetings were warned in succession, before the victory was achieved. Scarcely a district can be found

which does not contain some penurious individuals, who will seize upon any pretext to oppose the outlay of a dollar for a school-house. Though the rights of such persons should be respected, they should not be permitted to stand in the way of educational improvement. If the erection of a suitable school-house is to cause opposition, the sooner it comes the sooner peace comes.

**LENGTH OF SCHOOL TERM.** The law requires the school in each district to be taught for six months in the year. The Superintendent recommends that the minimum be set at eight months.

**GRADATION OF SCHOOLS.** It facilitates an economical classification. A school is classified as well as it can be, when those scholars who are nearly of the same age and advancement, are assigned to the same class, and are all employed upon the proper studies. In a common district, or mixed school, consisting of fifty scholars, of all ages, as many classes are required as in a school of six times the number,—though in the latter, each class would be six times as large. From twenty to thirty is a proper number for a class, with a good teacher.

Suppose we have six hundred scholars, of all ages, residing within a reasonable distance from a central point, and suppose we erect, for their accommodation, a union school-house, containing twelve rooms, each room capable of accommodating fifty scholars. Now, after an examination, let these six hundred scholars be distributed in these twelve rooms, according to their advancement. Let the fifty in each room be again subdivided into two classes of twenty-five each,—a first class and a second class, according to attainments. Let all in the same class attend to precisely the same branches of study. Let the Principal or Superintendent have the general supervision and control of the whole, and let him have one male assistant or sub-principal, and ten female assistants, one for each room. Or, if it be thought best, let the rooms for the upper departments be large enough for one hundred pupils, with a recitation room attached, for two teachers. The scholars in the lowest room will consist of very small children, just beginning to learn to read and spell. Those in the next room will be a little older and a step higher in their studies,—and so on until in the upper department we shall find young ladies and young gentlemen engaged in the pursuit of studies appropriate to a High School. Those in the same class have, invariably, the same class books, and each department is supplied with a teacher, especially adapted to its grade and studies, and furnished with all the requisite books and apparatus. This is what is meant by a thoroughly graded school, each class being just large enough to enable the teacher to work to advantage, and no one being so large as to be unmanageable. Several schools, answering very nearly to this description, are now to be found in Connecticut.

What are the advantages of such an arrangement over those which could be enjoyed by the scholars, if they were in twelve separate, mixed schools? In the mixed schools of fifty scholars, the number of different recitations and exercises during the day would be about twenty-four. The opening and closing of school, the recesses and necessary interruptions, would consume upwards of an hour, so that the average time left for each recitation would not much exceed ten minutes. In such a school the teacher is obliged to hurry from one exercise to another, with great rapidity, and of course, during the day, perform a great diversity of labor, from teaching the alphabet, to the highest class in algebra.

In the school, graded as I have described, the teacher has but two classes, and not more than six or eight recitations during the day. Consequently, there will be time enough to give to each scholar a thorough drill, without hurry or confusion. In other words, thorough teaching is greatly facilitated. The time of teacher and pupils is all used to the best advantage. While one of the classes is reciting, the other is preparing for recitation—this process alternating all day—the pupils having just time enough for study, and the teacher time enough for instructing each class. The advantages in the discipline and government are no less striking than those of instruction.

In the mixed school, a uniform system of management for the smallest and largest pupils can not be adopted. That kind of discipline which would be well adapted to the smallest children, would not be suitable for the largest. Hence, a much greater amount of labor and skill are required in the government of a mixed school of fifty scholars, than of the same number of scholars in a graded school; and all the teacher's force which is absorbed in government, in just so much subtracted from his available force for instruction.

Another advantage of this system is found in the facility afforded of employing teachers adapted to the different grades. To succeed well in a mixed school, requires a rare combination of qualifications—capacity to teach and interest the youngest, and also the oldest. But it is not so difficult to find teachers who are well adapted to a special department. In a graded school, each teacher has a

small number of different branches to teach, and, consequently, can do those so much the better.

The establishment and liberal support of graded schools, have given great satisfaction, and fully answered the expectations of their advocates, and no community which has given the system a fair trial, with a competent principal and well selected corps of teachers, could be induced to abandon it, and return to the old plan.

**MORAL CULTURE.** The want of a better moral training in our system of education is already beginning to be felt. It is already to be seen that we have exalted intellectual capacity above moral principles; while virtue ought to be education's paramount object, and ability subordinate. I note it as one of the encouraging signs of the times, that the importance of greater attention to moral training in our schools, is beginning to be agitated with earnestness and effect. A portion, and generally the most eloquent portion of nearly every educational report that reaches us, is devoted to this topic. The light which, for centuries, has been seen on the mountain summits has, at length, approached the valleys.

Milton spoke on the subject almost with the accents of inspiration. These are his words: "The end of learning is to repair the ruin of our first parents, by regaining to know God aright, and out of that knowledge to love him, as we may the nearest by possessing our souls of true virtue, which being united to the heavenly graces of faith make up the highest perfection."

Locke, the great John Locke, has spoken words of wisdom on this subject. "Virtue," says he, "direct virtue is the hard and valuable part to be aimed at in education, and not a forward periness, or any little arts of shifting; all other considerations and accomplishments should give way and be postponed to this. Learning must be had indeed, but in the second place as subservient to greater qualities. Seek somebody as your son's tutor, that may know how discreetly to form his manners; place him in hands where you may, as much as possible, secure his innocence. Cherish and nurse up the good and gently correct and weed out any bad inclinations and settle him in good habits. This is the main point, and this being provided for, learning may be had into the bargain."

Books, without number, have been composed for cultivating and improving the understanding, but few, in proportion, for cultivating and improving the affections.

But the best treatises will avail little without living teachers, with a hearty, earnest interest in the promotion of virtue, a sincere delight in noble character, a real passion for moral excellence, for generous, patriotic, honorable action, furnishing in their own persons examples of the precepts they enjoin. With such teachers, and with that best of manuals for teaching morality—the Bible—we may hope to see our youth walking in "wisdom's ways," and growing up as true ornaments and blessings to the community.

STATISTICS. Number of Towns,	158
Number of School Societies,	222
Number of School Districts,	1,626
Number of Children between the ages of 4 and 16 years,	100,820
Average number of Children in each District,	62
Capital of School Fund,	2,049,958.00
Revenue of School Fund for 1855-6,	147,215.00
Dividend per Child over 4 and under 16,	1.30
Capital of Town Deposit Fund,	763,661.83
Revenue appropriated to Schools,	40,000.00
Amount raised by 1 per cent. tax,	70,129.37
Amount raised by Society tax,	13,008.00
Amount of Revenue from Local Funds,	11,237.00
Amount raised by Rate bills,	31,839.00
Amount appropriated for support of Schools, exclusive of School-houses and repairs,	314,113.37
Amount expended for School-houses,	138,267.00
Aggregate amount expended on Common Schools,	452,380.37
Average wages of Male Teachers, including board,	28.75
Average wages of Female Teachers, including board,	17.25

The Reports of Lecturers, and School Visitors, point out the evils and defects in the working of the system, in the indifference of parents, the construction of school-houses, the irregular and non-attendance of children, frequent change of teachers, &c. The Tract, or Letter to Parents, by Mr. Northend, should be sent to the home of every pupil in the land.

*To be Continued.*





## II. AN AMERICAN UNIVERSITY.

BY BENJAMIN APTHORP GOULD, JR.

[AN ORATION delivered before the CONNECTICUT BETA of the PHI BETA KAPPA FRATERNITY, at Trinity College, Hartford, on the 15th of July, 1856.

That portion of this Oration which discusses the subject of an American University, was placed at our disposal by its author, as a contribution to the American Journal of Education, but we have preferred to present the address entire as delivered, as at once more satisfactory to the author and our readers. Ed.]

THIS honorable and honored fraternity, dating from the first year of our national existence, aims at uniting the scholars of the nation in one familiar band. It assembles annually in its numerous branches through a widely extended region of the American Union, and communes concerning the intellectual progress and welfare of the republic. The solemn injunctions and pledges to secrecy, which were supposed to strengthen the intimacy of the connection, have now in many of the chapters been disused; but the beautiful organization remains, and who may question its benignant influence. The ambition to be admitted to the brotherhood, the yearly gatherings of its members, the kindly communion of the several branches exert their beneficial power to nerve the young to renewed effort, they keep alive and strengthen in maturer years that affection for letters and intellectual pursuits which softens the manners and smoothes the asperities of active life, gladdening and comforting the professional man and the man of business, and they remove something at least from the barrier of physical distance.

The Phi Beta Kappa Society was established at William and Mary College in Virginia, on the 5th of December, 1776, five months after our declaration of independence. Within four years seven other branches had been chartered, and powers conferred upon some of these for chartering yet others in their several states. The first established chapters out of Virginia were the Alphas, as they are now called, of Massachusetts and Connecticut, charters for these branches having been issued to Mr. Elisha Parmele, on the 4th and 5th December respectively, in the year 1779. But little more than a year later, the original records of

the parent society closed,—the college being then suspended on account of the proximity of the British forces. The following is the last entry in the record book:—

1781, on Saturday the 6th of January, a meeting of the Phi Beta Kappa was called for the purpose of securing the papers of the society during the confusion of the times, and the dissolution which threatens the University. The members who were present were William Short, Daniel C. Brent, Spencer Roane, Peyton Short, and Landon Cabell. They thinking it most advisable that the papers should not be removed, determined to deliver them sealed into the hands of the college steward, to remain with him until the desirable event of the society's resurrection. And this deposit they make in the sure and certain hope that the fraternity will one day rise to life everlasting and glory immortal."

The hope was fulfilled. On the 25th June, 1851, the society was re-organized by Professors Smead and Totten, whom the venerable William Short, one of the original founders, and President at the time of dispersion, had in 1849, shortly before his death and more than sixty-eight years after the suspension of the society at Williamsburg, empowered in due form to revive and re-establish this the parent branch. During this last year the ancient seal has been restored by the Hon. Mr. Stuart, lately secretary of the interior, to whose guardianship it had been transmitted.

Not merely a long-established usage, but intrinsic propriety has rendered one topic in some one of its manifold forms, almost imperative for the occasion, namely, the duties and responsibilities of the American scholar. The orator is summoned as a member of a scholastic fraternity to address an assemblage of scholars. And whatever may be the variations, whatever the changes rung upon this theme, this is and ought to be the leading strain. Though trite, it is ever new and ever worthy of attention, and the succession of the instruments, repeating the same inspiring and ennobling notes serves to enrich and amplify, but not to overload the fugue. Nor is once a year too often for the topic to be formally recalled to our minds and earnestly commended to our hearts.

The flattering invitation to address you here to day found me among the balmy breezes of Louisiana. Written amid the icy blasts of New England, it sped to its destination amid the cypress and myrtle, yet still in our own beloved land,—as much our own

where Canopus sparkles in the winter night, as where the Great Bear trails along the sluggish zenith. Although accepted with hesitation, it has been most gladly complied with. It is indeed dangerous to venture on an untried sea, and all the more for those who know that their appointed path is in another course. Yet the temptation was great; for it was not merely to stand upon this soil, hallowed in the history of American freedom as in that of American letters, but to raise my humble voice in behalf of a cause which appeals to the scholars of our land to rally in its support, and insure its triumph.

"Urania speaks with darkened brow,  
Thou pratest here where thou art least,  
Thy faith has many a purer priest  
And many an abler voice than thou."

But soon follows the response:—

"From art, from nature, from the schools  
Let random influences glance,  
Like light in many a shattered lance  
That breaks about the dappled pools.

The lightest wave of thought shall lisp,  
The fancy's tenderest eddy wreath,  
The slightest air of song shall breathe,  
To make the sullen surface crisp.

There is a beautiful coincidence by which those places consecrated in the annals of our liberties are also classic in the annals of our letters; a coincidence which if fortuitous is more than wonderful. Beneath an overshadowing elm of that leafy city, which it has been my joy to hail by the name of home, the father of his country,—he whose name shall survive though all other modern names should perish,—first drew his blade, as commander of the armies of United America, and thence he led them on, in the name of the great Jehovah, to the achievement of a nation's independence. Here amid the embowering branches of your twin capital of letters and of state, we may yet see the famous oak, which sheltered and preserved the chartered liberties of a commonwealth. The classic walls of Princeton have echoed to the roars of hostile cannon, and reverberated the cheering shouts of Washington as he rallied his exhausted but undaunted band. The mild teachings of

the much-loved sage have for more than half a century filled the halls of Schenectady with youth thronging to gather the words of wisdom amid scenes once ravaged by fire and sword, and where of old were heard the guns from Stillwater and Saratoga. So too with Philadelphia and Williamsburg; so too with West Point and Annapolis.

Mr. President and Brethren of the Phi Beta Kappa Society, it has been urged that these days in which we are now met together are not times for studious abstraction, for scientific research, for literary retirement,—that there are higher claims on us than those of scholarship,—that even though the pen should not utterly yield to the sword and the toga to the gleam of arms, at least there are other themes for the attention and zeal of the patriot and citizen. No more, we are told, should Peace “pipe on her pastoral hillock a languid note,” but all the powers and all the enthusiasm of those who love their country and their race should be applied to the redress of wrongs and the enforcement of rights.

That there is some reason in this I will not deny; but it might be asked in return whether it is certain that a bandage might not cure as thoroughly as the amputating-knife, and oil and wine be preferable to the cautery. I believe, Brethren, that there are other places for serving one's country than the tented field, other deeds as valiant as the storming of a breach, or the scaling of a wall, other sacrifices as noble as that of blood; that a consecrated life is not one whit inferior in glory to a brave death. And I believe that it is good for us to be here.

“Act well your part, there all the honor lies.” It is as American scholars that I address you, as men who are yearning for a national independence more to be implored than political independence alone,—for an intellectual and moral freedom, in comparison with which mere physical freedom is dust in the balance; as men who would fain unite in resistance to the bondage of ignorance and prejudice and bigotry and barbarism; who would gladly witness the inauguration of an epoch when thoughts shall be more than clubs, ideas more than bowie-knives and revolvers; when if there be an aristocracy, it shall be certified, not by parish registers or bank accounts, but by intellectual attainments, moral purity and noble deeds; when the applause of good and thoughtful men shall outweigh that of an untutored rabble, and the ambition of our

youth be directed rather to excellence than to position; when the olive chaplet shall be more coveted than the jeweled crown of royalty, the laurel of the blood-stained victor or the fasces of official station. Being such men, it is as such that I address you.

If we would labor for elevating the intellectual tone and aspirations, and faculties and achievements of our fellow-citizens, what time more fit than this? When are such efforts more called for, than when violence threatens to usurp a barbaric sway, when the cherished and fundamental principles of republican institutions are set at defiance, and the very capitol resounds with the clash of weapons? Let me recall to your memories two cheering passages of history.

Among the noblest struggles recorded in the annals of liberty, the revolt of the Netherlands stands pre-eminent. Never was blood more freely offered in ransom for human rights, never was suffering more unflinchingly endured in behalf of liberty, never was self more manfully offered up upon the shrine of patriotism. And the most memorable of all the memorable events of that portentous strife was the siege of Leyden. For nearly an entire year, the endurance of the devoted inhabitants was almost superhuman. As their American historian expresses it, "they had gradually abandoned their hopes of relief, but they spurned the summons to surrender. Leyden was sublime in its despair." "From the ramparts they hurled renewed defiance at the enemy. 'Ye call us rat-eaters and dog-eaters' they cried, 'and it is true. So long then as ye hear dog bark or cat mew within the walls, ye may know that the city holds out. Should God in his wrath doom us to destruction, even then will we maintain ourselves forever against you. When the last hour has come, with our own hands will we set fire to the city, and perish, men, women and children together in the flames, rather than suffer our homes to be polluted, and our liberties to be crushed.'" An over-ruling Providence always protects those who will protect themselves, and despite the taunts of the Spaniards, the ocean did come over the dry land to their relief; its furious torrents swept the ruined dykes away, bearing the fleets of Boisot in triumphant state to the relief of the brave defenders of Leyden, already fearfully thinned by famine, pestilence and sword.

"The Admiral, stepping ashore," says Motley, "was welcomed by the magistracy, and a solemn procession was immediately

formed. Magistrates and citizens, wild Zealanders, emaciated burgher guards, sailors, soldiers, women, and children, nearly every living person within the walls, all repaired without delay to the great church, stout Admiral Boisot leading the way. The starving and heroic city, which had been so firm in its resistance to an earthly king, now bent itself in humble gratitude to the King of kings. After prayers, the whole vast congregation joined in the thanksgiving hymn. Thousands of voices raised the song, but few were able to carry it to its conclusion, for the universal emotion, deepened by the music, became too full for utterance. The hymn was abruptly suspended, while the multitude wept like children."

"On the day following that on which the relief of the city was effected, the wind shifted to the north-east, and again blew a tempest. It was as if the waters, having now done their work, had been rolled back by an omnipotent hand, for in the course of a few days the land was bare again, and the work of reconstructing the dykes commenced."

In commemoration of this memorable struggle, in reward for the sacrifices by the heroic city, and to enable the burghers to recruit their exhausted energies, William of Orange offered them immunity from taxation. Leyden patriotically declined the offer, but, accepting the proffered honor, still more patriotically requested that she might be authorized to establish a university.

Thus in the midst of tumult and bloodshed, in the hour of the country's deepest wo, while storm and clouds hung over the moral and political horizon, was born the glorious University of Leyden, to become a beacon light to the whole world, casting to the farthest limits of civilization its quickening rays. Thus while the Spaniard's artillery yet boomed athwart the exquisitely verdant plains of Holland; while the oppressor's sword still crimsoned that brilliant green with the blood of her sons; long before the widows and orphans of those who fell in that frightful siege had begun to recover from their agony,—on the 3d of February, 1575, Leyden "crowned itself with flowers;" the peals of martial music mingled with the strains of the oboe and the viol, and amid all the pomp of that demonstrative age, with processions, orations and banqueting, the new university was founded,—was dedicated to the glory of a coming nation, and to the service of Him who ordained the laws which were there to be investigated, interpreted and disseminated.



Two hundred and thirty-one years later, on the 4th October, 1806, three hundred and thirty thousand warriors contended in deadly fight for a nation's sovereignty, and when the sun went down on Jena, the dominion and glory of Prussia had set with it. One-half her army had been killed or captured, her cannon swelled the conqueror's train, and Napoleon pressed onward to Berlin. The rally of the defeated armies was but temporary and nominal. Frederick William was driven to the utmost limit of his kingdom, and his alliance with Russia only served to postpone for a few months the arrival of that fatal day when, after the last roseate hue of evening had been blotted out upon the bloody fields of Eylau and Friedland, he signed in tearful despair the treaty by which he surrendered one-half his kingdom, and submitted to a military occupation of the rest by the invading army. Prussia, which within a single century had expanded from a petty province into a mighty realm, no longer existed save in name. Prussia, which his grand-sire had raised to be the equal of Austria and Russia and France and England, was but a conquered province. Even his noble, generous and lovely queen Louisa, had not shrunk from encountering the horrors of war, not even from the most earnest although unavailing personal intercession, to obtain less humiliating terms for her nation, so lately in the front rank of earthly powers. The blow was too hard for her to bear; and, after lingering for a brief period, she sank beneath the weight of her affliction, while yet in the flower of her days, leaving a name enshrined in the hearts of her subjects. Above her grave at Charlottenburg lies her sculptured image, the masterpiece of Rauch, and thither still resort both the Prussian and the stranger, as to a holy shrine, where all the beauty which genius can represent, all the grace of art, the elegance of taste and the splendor of renewed royal affluence can but inadequately represent or commemorate the loveliness of her person and her soul.

It was at this period,—while an exile from his own capital, while the troops of Napoleon still occupied even the region left him east of the Elbe,—that the patriotic monarch registered a vow that he would yet disenthral his whole kingdom from the foreign yoke; that Prussia should yet resume her place among the nations. You know how well he kept that vow. But how was it that he laid the foundations for its fulfillment? He took counsel, not of the war-

riors, not of the clergy, not of the statesmen, but of the scholars of the land, chief among whom were Fichte Wolff Schleiermacher and Wilhelm von Humboldt, a name needing not the added luster even of such a brother's as he could boast. "Exalt Berlin," said they all with one voice, "and you shall exalt Prussia." And he did exalt Berlin. Within eight weeks after King Frederick William III., had affixed his signature to the treaty of Tilsit, he set it also to an edict requiring the preparation of a plan for a great university at Berlin; and ordained that so soon as the last Frenchman should have quitted the city, the professors should assemble in it, and lectures in the university begin. Meanwhile from his distant asylum at Memel or at Königsberg, he had sanctioned the several preliminary steps, and at last under the enlightened superintendence of Wilhelm von Humboldt, who became minister of public instruction, the greatest thinkers and profoundest students were summoned from all the corners of Germany.

Thus was planted the University of Berlin, watered with the tears, sunned with the hopes, nurtured with the aspirations of a people. You know what have been its fruits. Within its walls now gather daily more than two thousand students to catch the words of wisdom which fall from the lips of two hundred teachers. Nowhere since civilization dawned upon the world has such a constellation of brilliant minds illuminated the intellectual firmament, as that which has concentrated in the University of Berlin. I need to name no names,—the world knows them. And even here, standing on this other continent whither the star of empire is taking its westward way, we yet turn our eyes toward those intellectual beams which radiate from where their source has risen in the east. Prussia, God bless her, has reaped her imperishable reward. Though the voices and uplifted swords of her monarch and people availed not to delay the setting of her sun at Jena, they have done more than Joshua did in Gibeon, for they have hurried on its rising to another better, brighter, far more glorious day, and hastened still its upward course unto its culmination in effulgent noon.

These are isolated passages from the history of civilization,—isolated, yet by no means unparalleled. Did time permit, I might cite others like them, or coming to still later years might relate how the first act of the same Frederick William III., on receiving his Rhenish provinces at the Congress of Vienna, was, in the very

proclamation issued from that city announcing the re-establishment of his realm, to promise them a university; and how one of his earliest deeds was to found the institution which has made classic the name of Bonn.

But the lesson is obvious enough. If the political times are sad and the prospect gloomy, so much the more do we need the patriot scholar. If true patriotism seems at an ebb, and the foundation-principles of our republic to be neglected, so much the louder comes the appeal to us to develop the mental resources of a new world. And were the clouds once dissipated and the bright bow of faith again to seal the promises of the past by the pledges of the present, the future still calls on us for action. There can be no reasonable doubt that the future of two continents is in a great measure to be decided by the acts of the generation now growing or grown to man's estate upon the soil of America. Exalt America and you exalt a world. Let her but tread that downward path which begins by fostering the material and physical to the exclusion of the intellectual and moral,—so let the curtain fall, for it were better for you and for me that our eyeballs should be seared, and our tongues palsied, than that we should see the sight or tell the tale.

The purport of my words to day is this. Shall our zone-and-ocean bounded realm, lighted by Southern Cross and Northern Crown, shaded by fir and larch and palm and vine, bearing in its maternal bosom the hopes, not of a hemisphere, but of a world,—whose present is a speck in contrast with its awfully portentous future, but which even now contains a population more than five times that of Holland, more than double that of the Prussian or the Austrian realm, far more than that of all Great Britain; with a richness of resources and a teeming wealth surpassing that of any other empire on this earth,—shall we not take this counsel from the days that are gone and follow this omen for the days that are to come? Shall we Americans never aspire to what suffering Leyden craved, what conquered Prussia looked to for regeneration, and without which all the clustered glories of the Rhine lacked their highest charm? No, we must have it, and have it soon. No more must the long procession of our youth toil through its weary pilgrimage across the Atlantic wave in search of that mental sustenance which it has a right to demand at the hands of its fatherland.

No. 6.—[Vol. II., No. 2.]—18.

But it may be asked by some,—What means all this clamor for a university, when we have already one hundred and twenty-seven in the land, and every year is adding to the number?—when the earliest thoughts of our fathers were given to the foundation of colleges in the occidental wilderness, when Harvard followed so close upon the landing at Plymouth, and the settlement of Jamestown was commemorated by the College of William and Mary. The reply is very simple. It is not of colleges that we are speaking, it is of a university. And perhaps it may be advisable to consider for a moment the difference between the meanings of these two words. Or better, if the usage which has grown up in America, and by which the two words are often used as synonyms, be too deeply rooted to permit the distinction to be at present insisted on with advantage, let me define the idea which I desire to convey by the word university, and the institution for which I plead. Names are not things, although some things are but too often names. And the much abused word University has had many a hard burden to bear. In one country it has been made to denote the whole educational organization of the nation,—in a second it is used to designate an aggregation of colleges, whether great or small, similar or diverse in their constitution and aims,—again it has been employed to signify an academic board which confers degrees,—and yet again it is defined as the compound institution arising from the juxtaposition of literary, scientific and professional schools. “In this country also,” I quote the language of President Walker in his sage inaugural address, “the ambiguity has been still further complicated by an accident of history. Our oldest colleges in the beginning were nothing but colleges in the most limited sense of that term, and therefore were so denominated. Some of them, however, when considered in connection with their scientific and professional schools have grown into a resemblance to the German and Scotch universities, but still prefer to retain the old name, while on the other hand colleges of yesterday which can hardly yet aspire to be colleges have chosen to begin by hanging out what I suppose is regarded as the more showy and attractive sign of university.”

By College I understand the high educational seminary which, if not the most exalted for the students of specialities, is yet the highest for the youth who seek that mental discipline, that classic

culture, that literary refinement which must be drawn from the bosom of an *Alma Mater*, and of which we say "*emollit mores nec sinit esse feros*." I mean that kind of seminary, in the development and equipment of which we Americans have a right to glory as much as in our common schools, and which at present forms the culminating point of our educational system; which transforms a well-taught boy into a cultivated man, and, while in many cases it trains and introduces to the world clergymen, lawyers, physicians, and of late years engineers and chemists, also secures for the community, to the lasting welfare and praise of the State, and honor of the good men to whom its foundation may have been due, a refinement and cultivation among our merchants, bankers, tradesmen, farmers, mechanics, unsurpassed and indeed unequaled in any region of the world and any epoch of history, if we but make the single exception of the Athenian Demos. For, as one of our most elegant scholars and most practical men has truly said, "we take our degrees in the schools, academies and colleges of the country whether we go to them or not. The scholar who speaks to us, the lawyer who pleads for us, the lecturer who discourses at the lyceum, are all our educators." And thus, as Professor Felton went on to show, Shakespeare was educated at second hand by Cambridge, Franklin by Oxford, and the eloquent Clay by those colleges which had stored the minds of Adams, Calhoun, Webster and his other associates and rivals with abundant lore and eloquent culture and exact science.

These are our colleges,—such noble seminaries as Harvard and Yale and Brown, as the Colleges of New Jersey and South-Carolina, the Universities of Virginia and Pennsylvania, such as this *Alma Mater* of good and holy men, who shelters us here within her protecting arms, and blesses this our gathering in the name of religion, and science and letters. This is what I mean by college. Wo to our land if they ever lack protection from the state, the community or the church! They have a lofty mission. To them are confided interests, demanding all their care and all their energies and all their resources.

By "University" on the other hand, I understand the *Universitas Litterarum*, the Πανεπιστήμιον,—an institution where all the sciences in the complete and rounded extent of their complex whole are cultivated and taught, where every speciality may find its vota-

ries, and may offer all the facilities required by its neophytes. Its aim is not so much to make scholars as to develop scholarship, not so much to teach the passive learner as to educate investigators, and not merely to educate but to spur on.

It is not solely to diffuse the quickening, life-giving streams of truth, but to fill and keep high the foundation whence all the channels are supplied. It is not so much for preparing the student to be a lawyer or a physician, as for teaching him the fundamental principles of law and medicine and imbuing his whole being with the deep truths which underlie these principles themselves. Not simply to create engineers or surveyors or classical scholars or well-informed men, but to make analysts, naturalists, philologists, searchers after truth and wisdom. To be to the colleges what the normal school is to the high school. To act indirectly with as great a power as that with which its direct action is exerted. To teach men as well as youths. To make manifest its ennobling and elevating action in its reflected influence upon the professors themselves; to be a throbbing intellectual heart, forcing its life-giving streams through every artery to the farthest bounds of the body social and the body politic.

In short, we need a hundred colleges in these United States, while from the very nature of the case it is impossible that for long, long years to come, we should have more than one well-organized University. And, if for the sake of condensation and antithesis I might presume to clothe my meaning in a somewhat paradoxical form, while the usefulness of a College may be measured with considerable propriety by the number and character of its students, that of a University is in the ratio of the number and character of its professors. Should there be one struggling student of the most barbaric tongue or the most recondite speciality of science, he has the same right to ask for a helping hand and intellectual guidance there, as though the bent of his talents led him to the most thickly trodden path, or the least uncommon aspirations. And at a University truly deserving of its name he would find a teacher and helper in the study of any one of the departments of human research, whether in the realm of matter or of mind.

Surely there can be no confusion as to the boundary line between these two distinct institutions. One is designed to answer the demands of the community and of the age; the other to point out



the paths and lead our country on to a higher, nobler, holier, sublimer eminence than it could otherwise attain, or than would otherwise be striven for.

Centralization is a word and an idea now far from popular. But this, like most other principles, has its good as well as evil consequences. And while we, under democratic and republican institutions, feel the full force of the objections to that political centralization under which we see so many nations of the old world tottering and sinking, we are too apt to overlook the incalculable, the unspeakable advantages which flow from the concentrated accumulation of a whole nation's genius and talent.

The enthusiastic Parisian knows so well and feels so deeply what the centralization of intellect has done for his capital, that he forgets, or willingly loses sight, of the unceasing woe to which political centralization has doomed his fatherland. The thought "*La France, c'est Paris*," may well flush the patriotic Frenchman's cheek with the glow of honest pride as he recalls the dazzling brilliancy of the assemblages which crowd the halls of the Institute, or of the faculties of science and letters which disperse to Paris within the circuit of a single league one-fourth of the learning and wisdom of the world. There is no substitute for the "encounter of the wise." Like that of flint and steel it strikes out without cessation the glowing sparks of truth, like that of acid and alkali it forms new, unexpected and priceless combinations, like the multiplication of rods in the fagot, it gives new strength to all while taking it from none. A spiritual stimulus pervades the very atmosphere electrified by the proximity of congregated genius, its unseen but ever active energy,—floating in the air, whispering in the breeze, vibrating in the nerves, thrilling the heart,—prompts to new effort and loftier aspiration, through every avenue which can give access to the soul of man.

Such centralization is eminently distinguished from political centralization, and by this peculiarity among others, that, far from being a combination for the sake of acquiring and exercising a greater collective power, it acts on the contrary to augment individual influence. While forming a nucleus for scientific, literary, artistic energy, it is not a gravitative center toward which every thing must converge and accumulate, but is an organic center whose highest function is to arouse and animate the circulation of thought

and mental effort and profound knowledge. It is a nucleus of vitality rather than a nucleus of aggregation. As the electric battery confers upon every portion of its extended circuit the capacity of communing with all the rest,—as the heart sends out the new-formed blood to quicken every member and then to return for a new freight of life-giving power,—as the brain diffuses its nervous sensibility and its sympathetic faculties to every organ, until the full current of vitality pervades the frame and carries life to the whole organism,—as the great center of our planetary system exhaustlessly disseminates that wondrous force by which the planets and the comets are impelled in their never-ending rounds, sending unceasingly those mystic energies whence they derive all light, heat, motion, force and life, yet asking nothing in return but that these energies may be distributed, adapted and applied,—as the fountain pours out its full invigorating stream, and is again replenished by the dews, the mists, the rains, the clouds, which owe their origin to this very invigoration,—so will a wise concentration of intellect and wisdom promote its own diffusion. An intellectual center for a land is a heart, but subject to no aduration; it is a brain, but liable to no paralysis, an electric battery which can not be consumed; it is a sun without eclipse, a fountain that will know no drought. To such a University our colleges would look for succor in their need, for counsel in their doubt, for sympathy in their weal or woe. There is no one of them but would develop to new strength and beauty under its genial emanations, none so highly favored or so great that its resources and powers would not expand, none too lowly to imbibe the vitalizing, animating influences which it would diffuse like perfume.

It were unnecessary to dwell on the peculiar position of the United States in the progress and development of the world's civilization, and on the transcendent interests committed to our keeping for the welfare of centuries to come. Our fathers acknowledged the heavy responsibility which can not but accompany our surpassing privileges. The present age confesses it by that zealous care with which it guards and strives to extend the system of popular education which our fathers founded and transmitted to us.

Patriotic citizens are emulating one another in their zeal to contribute all that is in their power to raise the intellectual and moral tone of the community in which they dwell, and they will be thank-

ful to us if we will guide their liberality. To the least observant it is palpable that the present is in a pre-eminent degree what is called a transition-period, and not only that we can not remain at rest, but that the current of events is sweeping us onward with resistless force, and a rapidity both unequaled in the history of nations and too great to continue long. Fixity, rest, is at best but an abstract idea, without expression either in the material or the moral world. Neither in the heavens nor on the earth nor in the mind of man, neither in the condition nor the language nor the character of nations, is there repose. The very equilibrium both of the physical and of the immaterial creation is an equilibrium of motion, of oscillating counterpoises, of force wrestling with force. But our rushing headway is different from all this; it is something abnormal.

Hardly the screaming steam-horse and the rattling car can typify the speed with which the materials and manners and thoughts and tendencies of our nation are forming, moving and giving place to their successors,—with which our institutions are modifying, our aims shifting. Not merely our system of self-government, but a myriad of other agencies, more numerous than human ingenuity could devise or tongue enumerate, are uniting to swell the breeze which fills the unreefed sails and yet more strongly than the tide still bears us on. But whither? Aye whither! Hopes and fears, auguries of good and omens of ill, confusedly mingled, distract and perplex us. The landmarks are all unknown and we can not tell whether this mighty current, this unceasing and still rising gale are bearing us to some unruffled Pacific sea, or hurrying us on to a relentless Maelstrom. It is the time for action. Thank God that there may still be time to discipline and instruct the crew, and to secure the helm! Men of science and of letters, patriot scholars of America, let me adjure you one and all to lay hands to this mighty work. Think of it, dream of it, talk of it, write of it, agitate it at home and abroad, discuss it in your domestic circles and your places of business, offices, counting-houses, reading-rooms, in your social gatherings and your public meetings. Let the public mind be imbued, permeated, saturated with a sense of the crying need of some great American university, some center of thought and study and research and culture. Do this—and, believe me, it will come. The sooner the better, or we needed it long ago; and we must

have it very soon or not at all. Only put your shoulders to the wheel and we shall have it now. The attention and efforts of good and wise men have already been earnestly directed to the attainment of this end or at least of some progress in this direction. It was the keen sense of this need which led to the establishment of the scientific schools at Cambridge and New Haven,—institutions which have already been found worthy of imitation in numerous other colleges. It stimulated the eminent scholar, who until recently presided over Brown University, to prepare and urge and carry into effect a complete plan for the re-organization of that college, with the intention of making it a university in fact as well as in name. It prompted enthusiastic hopes in behalf of Columbia College in New York, to struggling endeavors in Philadelphia, to earnest and all but successful effort in Albany, and the foundation of a National University Association, which has already held several meetings in that munificent and public-spirited capital. It has enlisted general interest and stimulated active exertion in the city of New York, where even now some of its advocates are sanguine of ultimate and not remote success. Let us all unite to aid the patriotic and holy cause. The place is a secondary question. Be it California, thither our youth and our wise men shall flock as to a second Mecca, and the Golden Gate be transfigured into a gate of glory. Be it Louisiana, there shall its myrtle and its olive find a new use and a nobler significance. Be it in the far North-west, the matchless fertility of its soil shall be but a feeble type of the new race of its sons. Be it in Virginia, or in our own New England, so shall she forever retain the proud title of Mother of Great Men. Be it in the Empire State, it shall be her noblest, most resplendent crown.

The state that founds the American university, richly deserves to possess it; and I dare not believe that any of us will see the day when there can be a second one. Wherever that university is founded will be the heart of the American republic, and the name of its founder shall go down to distant ages by the side of that of the father of his country.

It has been a favorite plea in excuse of our national shortcomings, to say that we are as yet very young, not yet expanded to the vigor and strength of the old world. Vain, shallow pretext! Foolish sophistry! We are in the fullest vigor of a yet unwasted

strength, the richest people upon the earth, glorying in our energy, our power of endurance, and our feats of arms. It is time that we had begun to glory in our moral worth, our mental vigor, our intellectual progress, and the support, championship and furtherance of other ideas than physical strength and laden coffers. And the signs are not unpropitious. Indeed, we may already glory that the whole republic has been found ready to respond to the appeals of an Agassiz,—that even the packet-ships of the land have hastened to offer the welcome of their hospitality to European scientists who desire to attend the annual gathering of our American Scientific Association. Heaven be praised that we may already glory in the possession of high-minded men whose public spirit and liberal munificence have become proverbial wherever patriotism is honored and generosity applauded! Heaven be praised that we may claim as our fellow-citizens the Coopers, Astors, Dudleys and Lawrences! Our thoughtful and gifted Lieber has given their deeds a fitting name. "To call such gifts princely, or even imperial, liberality," he says, "were simply using a sinking figure of speech. Princes never bestow such gifts of that which is their own. May we not call it '*American republican munificence*?' No Adrian disburses this sum from a treasury filled with the tribute of aching provinces; no Napoleon lavishes it from the collection of severe taxes; no Guy bequeaths it to soothe the smarting memory of disreputable traffic; no testator distributes what he could not take with him; but a simple citizen and kindly lover of his species gives what he has earned by active and by honest trade, in the full vigor of a life that has always been garnished with deeds of charity and public spirit. An act like this is an event and belongs to history, otherwise it might be indelicate to state that the mentioned sum is not the tithe, but the third or fourth part of the wealth which the generous donor's own industry has accumulated with the blessing of Providence."

To a nation which has raised up such men as these, it is impossible that our appeal should be made in vain. These public-spirited men too have a right to expect of us some indication as to what and where are our most crying intellectual wants; and even did they not expect it, we have a right to urge our appeals and volunteer counsel in the name of that fatherland for whose present progress we would plead, and in behalf of whose eternal destiny we would implore.

But it is scarcely to be anticipated that so large a sum as would be demanded for the foundation of a University upon a scale worthy of this people and commensurate with the demands of the age can be derived from private generosity, even though several individuals of exceeding wealth should unite in the exercise of American republican munificence. The yearly outlay would far exceed the whole endowment of an ordinary college. For such sums as these it has always been necessary to appeal to a state or nation. There are great disadvantages connected with such a course here, it is true, the most prominent of these, under our form of government, being the danger of intermeddling by unskilled and incautious legislators. Yet it seems far from impossible to guard against this peril, great as it is,—and to arrange a judicious system of checks and balances, by which the evils of hasty and impulsive legislation may be averted, without impairing the capabilities for progressive expansion and adaptation. It were certainly vain to imagine that any handiwork of human skill can spring into being, like Pallas, in the full maturity of perfection. No organism was ever manufactured. It must grow. The element of time must enter into its development. As a garment fresh from the artisan must gradually adapt itself to the form which it is to clothe, so must every national institution grow into its conformity and harmony with the manners, the tone, the tendency of the people. And thus the danger of a dependence upon the body politic appears manifestly far less to be apprehended than the opposite peril of an unrenewed governing board, permanent and filling its own vacancies. For however decided may be the advantages which spring from unity of counsel, however trustworthy and enlightened may be the individual members personally, still the principle of power without immediate responsibility is too much at variance with the whole tenor of American republicanism, to escape distrust and animadversion, more harmful than even divided counsels or a fluctuating policy. It were manifestly out of place to enter here upon illustrations of my meaning. They will occur to you all. Perhaps there is no principle of social philosophy more generally conceded by our statesmen and scholars, than that which warns against an institutional oligarchy, not open to influences from without, severed from dependence upon the community which surrounds it and in behalf of whose interests it is to act. The era of such organizations was



that of prospective and exclusive monopolies, and of territorial entails. They are characteristic of a by-gone age, though of an age whose consequences may still be found here and there in the form of chartered prerogatives and traditional abuses. That these are altogether without power for good no one can doubt,—and it were easy to exemplify this also by citing exceptional cases, close at hand, in which a very small oligarchy is endowed with large privileges, most conscientiously exerted. Yet here it is the peculiarity and conspicuousness of the exception which illustrates the existence of the rule. Upon this topic there is room for large discourse; but it belongs to the detailed rather than to the general consideration of our subject, and I pass on with a single remark.

More than one carefully organized educational institute has failed of full success in our land in consequence of a grievous and eminently injurious theoretical error on the part of its founder; an error, too, not unnatural for those, all whose experience and views of life are taken from the so-called practical, that is the empirical side. If an institution, they say, be in conformity with the wants of the age and of the people, it will, when once established and fairly launched into the stream of action, prove self sustaining and be capable of constantly replenishing its own resources. A failure to do this would, they maintain, furnish all the demonstration requisite for showing that the institution, in that form at least, was not needed. A grievous, an injurious error, did I say? There are in this assumption two fearful, deadly mistakes,—practical errors as well as philosophical fallacies. Is there one of our colleges that is self-sustaining? Shall we apply the doctrines of trade and barter to human souls? Are we to reason about mind and thought and culture and research, as we do about bales of cotton and chests of indigo? No, that is indeed a dire mistake. And a yet greater one is the pernicious idea that the design of a school or an athenæum or a library or a college or a university is to keep pace with the times and with the public mind,—in short, that it should follow rather than lead. To adopt such a doctrine were to debar ourselves from progress. What! education dragged dangling at the heels of the age, struggling to keep up with the march of civilization? What! the teacher leaving his proud vocation, to throw out bait for pupils who may bring a few more dollars to the treasury, or a few more human beings to the lecture-room? No. We want no

university keeping up with the times and commending itself to the public approval. We want one which shall be just as far ahead of the age as is consistent with being within hail,—which shall enlarge and expand the mind and taste and appreciation of the public, compelling the admiration of that public, not soliciting its approval. We want a university which instead of complying with the demands of the age, shall create, develop, and satisfy new and unheard-of requisitions and aspirations,—which so far from adapting itself to the community shall mould that community unto itself, and which through every change and every progress shall still be far in advance of the body social, guiding it, leading it, urging it, drawing it, pulling it, hauling it onward. An institution not needed if it is not self-sustaining! Have the greatest men of ages past been sustained by the community,—the Homers, Keplers, Miltons? Brethren, is the sun needed in the heavens? or shall we deny this also, because it is not sustained by the planets which it illumines and vivifies?

There is, however, one sense in which a university ought to be self-sustaining. As the sun, though not upheld by its planets, is still an essential member of the Kosmos, and is itself bound by the same laws as they, although primary to a more exalted system, so must a university be self-sustaining, not materially or pecuniarily in a direct temporal sense, but mentally and morally. It must command the veneration and devotion of the nation, creating in the republic a reverence for truths, and principles, and learning, and science, and research; an intimate acquaintance with the laws which regulate the universe, and whose detection reveals to us the counsels of the great First Thought and the eternal decrees by which He manifests himself,—decrees recorded in the answer to every question that may be devised by the fertile thought of the being molded in the image of his Maker. Commanding this respect, enlisting this homage; receiving this fealty, it will and must be self-sustaining like every other university that ever existed.

University. It is a word in the history of man, like Church, State, School. It is at the same time one of the great phenomena and one of the great levers of civilization. Under some form or other it dates back to the very dawn of letters, art, culture, refinement. It has existed, without a chartered name or tangible organization, wherever wise and thoughtful men of diverse attainments

have been numerous assembled, raising the tone of thought in a state and acting on each other, as on society at large.

Ancient Greece, the parent of our modern civilization, may boast the first University. For, however incomplete and immature, it was an infant university,—that concourse of gifted men which crowned immortal Athens with her undying glory, when half a century after the foundation of the first recorded library, the lofty aspirations of Pericles and his countrymen found expression in those transcendent works of art, which confirmed, even while illustrating, the refinement and genius of the state, and have secured throughout succeeding ages to a city numbering scarcely more than a hundred thousand inhabitants, and only twenty thousand voters, the titles of nurse of arts, fountain of science, center of culture, home of philosophy and studious thought. The intellect of a world thronged her streets, the unrivaled grandeur of her Acropolis but typified the elegance of the popular taste, while in its crowning monument,

"Earth proudly hails the Parthenon

As the best gem upon her zone."

A gem too, not dedicated to the protecting power of Zeus, not to the loveliness of Aphrodite, not to the valor of Ares, not to the all-embracing dominion of Poseidon. No, it was another divinity than these who received the highest tribute of "Cecropias pillared state," who gave its olive and its name; and the full treasury of the triumphant republic poured out its wealth in unstinted profusion to rear the proud temple and the colossal statue to Pallas Athene.

"Athens, the eye of Greece, mother of arts

And eloquence, native to famous wits

Or hospitable, in her sweet recess,

City or suburban, studious walks and shades;

See there the olive grove of Academe,

Plato's retirement, where the Attic bird

Trills her thick warbled notes the summer long;

There flowery hill Hymettus, with the sound

Of bees' industrious murmur, oft invites

To studious musing; there Ilissus rolls

His whispering stream; within the wall then view

The schools of ancient sages."

This was a magnificent university; and here began that long

line of great men which, under the exalting influence of Athenian culture, gave the world a list of names yet equaled by no realm, or age, or race. The shady groves and grassy lawns were consecrated by the teachings of great men to whom we even now refer for instruction and ennobling thought; the theater of Dionysos beat to the rhythm of Æschylus and Sophocles, Euripides and Aristophanes. Here were the wise statesmen; here the impassioned, silver-tongued, and all-persuading orators; here were the fathers both of physical and ethical science; and here the authors and artists who gave language and molded taste and style for coming ages and nations. In Athens and Athens only in all history, could have been uttered that proudest of boasts, that loftiest of panegyrics:—

“Τοσούτων δ' ἀπολείπειν ἡ πόλις ἡμῶν περὶ τὸ φρονεῖν καὶ λέγειν τοὺς ἄλλους ἀνθρώπους, ὥστ' οἱ ταύτης μεθῆται τῶν ἄλλων διδάσκαλοι γέγονασι, καὶ τὸ τῶν Ἑλλήνων ὄνομα πεποιήκεται μᾶλλον τοῦ γένους ἢ τῆς διαβολῆς δοκεῖν εἶναι, καὶ μᾶλλον Ἕλληνας καλεῖσθαι τοὺς τῆς παιδείας τῆς ἡμετέρας, ἢ τοὺς τῆς κοινῆς φύσεως μετόχους.”

“So much indeed has our own city surpassed all the rest of mankind in thought and language, that those who here are pupils are teachers elsewhere, and that she has made the name of Grecians seem no more to denote the race alone, but the intellectual attainments, and those to be called Grecians who partake of our culture, rather than those who share our common nature.”

Even three centuries later, Athens was still a Universal school, and frequented as such by the youth of Rome, in her palmiest days, for the improvement of their minds and education of their taste. There Cicero and Virgil, Horace and Lucretius studied, and thence they brought that grace and learning and thought with which they adorned their native tongue.

So, too, were Alexandria and Pergamos, so were Tarsus and Berytus, partial universities, by virtue of their libraries and of the learned men whom these libraries attracted,—universities and direct offshoots from the Athenian stem. But the legitimate successor of Athens was Constantinople, which in the fourth century of our era became the center of art and letters. Science hardly existed at the time, and what little there was had found a temporary refuge among the Egyptians and Arabians. But art and letters fled to the Byzantine capital, lingering there so long as it could afford a

shelter, and leaving indeed their traces even down to the present day in the Greek schools which still continue under the protection of the Patriarch of Constantinople.

The atrocities of the Crusaders,—those foes of culture and learning more ruthless than the Saracens, more unsparing than the Ottomans, more desolating than the Huns or Vandals,—combined with the barbarism of all the rest to destroy the monuments of ancient art and the masterpieces both of the earlier and later classics. An exodus of scholars from Constantinople, which had commenced before the sack and pillage by Mohammed II., was rendered complete by that fearful catastrophe. The word, university, in its signification of place of instruction in universal learning, had already come into us. Like an exploding rocket sprinkling on every side its spray of golden sparks, so did Byzantium in its destruction send out its scholars to scatter the seeds of Hellenic science and culture in directions the most diverse. These were the men who originated and established the universities of Italy and France and Spain, and the precursors of the universities of Germany. Platonic academies were founded, in places the most remote, by fugitive Greeks, who introduced into European learning the element of criticism, an element unknown in Asian science. This rekindling of letters by the renewed study of Grecian literature was the harbinger of a new era, and the dissemination of such scholarship as had remained in Constantinople led to a rich and copious harvest. It was this regeneration of intellectual activity that rolled back the dark curtain of ignorance, superstition and barbarism which has given a name to those ages, and it prepared the way for that form and measure of civilization which we now enjoy,—a civilization founded upon popular education under the immediate guidance, direct or indirect, of institutions of higher learning.

The discovery of the Pandects doubtless aided the progress of this revival of letters, by the stimulus which it gave to the study of the law; for an incentive to advancement in any one department of research is always an impulse to all the rest. The universities of Bologna and Cordova, of Lyons and Paris, had already been founded, as also had the monastic institutions which formed the germ of the present seminaries of Cambridge and Oxford. These were now followed by universities at Naples, Padua, Vienna, Pisa,

Perugia, Valladolid, and elsewhere; but especially by the Platonic Academy of Florence, which became the focus of culture, taste and thought, constituting in fact a splendid university which led the way for many of the weightiest discoveries of modern science, and still secures to beautiful Florence her pre-eminence as the home of art. For letters and research, science and art, may not be divorced by the hand of man. Speech, thought, emotion, are connected by indissoluble ties.

I will not attempt to follow up the history of universities. Suffice it to repeat that where the great and gifted are gathered together in numbers, there is the germ of a university,—competent even as a germ to enlighten and to spiritualize, no matter whether it publish programmes and confer degrees, or not. In the brilliant days of Louis XIV., the Parisian University was not merely within the walls of the College Louis le Grand, or of the Sorbonne. Its spirit was in every public gathering, it pervaded the air, it radiated even from the dissolute court, and amid the profligacy of those degenerate days it held up the ægis of mental culture, shielding from many a moral taint and sheltering the state from wounds which would otherwise have hurried it to a Babylonian fall. And I assert that wherever and whenever in history we find a state or a city conspicuous for an ennobling influence upon its age, race or nation, we shall find this influence to emanate directly or indirectly from a university.

I had designed devoting some little time to an account of the Italian, Spanish and early French universities, tracing the gradual modifications of their respective organizations, and finally entering upon some account and discussion of the great universities of modern Germany. But this would demand a disproportionate share of your time, and more than I should be warranted in consuming; and since the questions which they would suggest pertain chiefly to matters of detail rather than to general principles, I will not hesitate to pass them by.

Cambridge and Oxford too, the chief universities of England, have exercised an eminent influence upon the national character, although their benefits have probably been due rather to the circumstance, that these two cities have formed the nucleus around which has crystallized the whole scholastic culture of the realm, than to any especial excellence or completeness in the constitution



of the seminaries. For both of these institutions, although now known by the name of universities, were originally a simple aggregation of monasteries, founded for religious more than educational purposes. At present all these monasteries have become colleges; but, in spite of their enormous wealth and of the abundant learning which has clustered and still congregates around their venerable and honored walls, their cultural development has not been of that wide range which characterizes a university proper, but has been restricted chiefly to exegetical philology, theology and ethics, with the addition at Cambridge of the mathematics. So striking has been the want of symmetry in the growth of their range of study, that even now, the word "scholarship" is there employed to denote solely proficiency in philological attainments, or rather a knowledge of a limited number of the Greek and Latin classics, to the exclusion of all the exact and natural sciences; while "natural philosophy" is still used, as it formerly was with ourselves, to designate all the departments of physics combined.

Let us now recall the memory of some of these universities,—reverend and hallowed in the history of the mental progress of our race,—and let us admit to our hearts the associations with which their names come freighted.

Let us think of Bologna, Cordova, Padua, Salamanca; of Heidelberg, Prague, Pavia, Sienna and Coimbra; of Cambridge, Oxford, Würzburg, Leipsic, Basel; of Wittenberg, Seville, Königsberg, Jena, Pisa, Leyden, Bamberg; of Halle, Göttingen, Upsala, Munich, Berlin. Let us recall these and others like them, and then inquire whether all this fair series is now to be at an end, because the physical energies of the world have begun to traverse the Atlantic gulf. Shall all the classic names be trans-Atlantic, and no American soil be sacred in the annals of mental progress? Shall there be no new Athens upon this wide-spread continent, where science and art, ancient lore and modern inquiry, may gather together and be blessed under the protection of a nation's wings or folded to a nation's heart? Shall our American youth still be driven to make their weary pilgrimage across the sea, even as the children of luxurious, effeminate, ignorant Rome were wont to seek the groves of crumbling Athens, there to gather the remnants of that mental food which Hellas had given to her children, but Rome refused to her own. Brethren, if you omit the university

from the scheme of the commonwealth, you will cripple civilization, you will mar the noblest development of humanity. And yet how stands the case with us at present. Although we have our twenty-seven millions of souls, although we have everywhere our common schools, though we have established our high-schools, and founded our colleges,—yet when the earnest youth, whose lips you have moistened with a few drops of the quickening draught, rushes to seek the full tide of learning, asking to drink from the fountain-head, and bathe his soul in the refreshing current, you show him the flood-gates closed. He hears only the distant murmuring of the wasted stream which ever torments and never may slake his thirst, and whose rippling voice is more torturing than is the sparkling nectar at the lip of Tantalus.

I claim that the same arguments, which demand of a state that it educate its children, require in like manner and with equal force that all be furnished with full opportunity for developing their intellectual powers, and that abundant provision be made for the special education of those whose general education has been already provided for. And if it be a high duty to supply colleges which shall help to change the well-trained boy into the cultivated man, how can it fail to be a duty also to enable the cultivated man to become the scholar, the investigator, the teacher, the helper, the ennobler of his race and country?

But there is a far higher ground than mere precedent, on which the university must be advocated and established. Did history furnish no examples for our study, admiration and emulation, still the call on us to establish a university would hardly be less imperative than now. That men are born with faculties for progress, with inward promptings to investigation accompanied by the capacity to conduct it, is a sufficient indication that the Creator and Supreme Disposer meant these powers to be cultivated. And the experience of all humanity teaches, that His providence is so exerted as to reward intellectual triumphs by temporal blessings, conferred if not upon the individual at least upon the race. We know that strong taste, impulses and capacities for searching out the secrets of nature, developing the beauties of art, discovering the laws of existence and of thought, are sparsely and diversely conferred. And since without the support and aid of society these lofty impulses can not be gratified, the conclusion is inevitable that it is a duty of the state to promote the culture of special mental powers as

well as the education of general capacity, and thus to insure for the benefit of the commonwealth the maximum spiritual activity of its citizens. I will not attempt to follow, expand or illustrate the argument. To you its pursuit, expansion, illustration, are in no wise necessary. Indeed an excuse is needed for the allusion to what is so self-evident and palpable. Would that the apology were not at hand! But till our own America may boast a university where all her sons, whatever their peculiar bent or taste, may find an opportunity to gain new light and larger knowledge, we must dwell on this, were it the tritest of themes, and lay stress on it, were it the most elementary of axioms. Let us hope and trust that before the revolving year shall again have called you together to celebrate this festival, no man may be able to deny that America provides food for her children.

The mode of organization is a secondary question, no matter how great may be its intrinsic importance. There are those who strenuously advocate the German plan and would retain all the little peculiarities of detail, riveted on by history, and which none would so gladly discard as the Germans themselves. There are those who advocate an ideal structure, planned with skill and reared with judgment, to overtop and eclipse all its predecessors. Nor are those wanting who in the zeal of their scholastic sympathies would summon again the ancient usages of Bologna, or the constitution under which Salamanca won her classic name. All these are questions of detail, and their answer is at present unimportant in comparison with the great problem before us, which is to found a university somewhere and somehow. I will not enter into particulars, but may be permitted to express my abiding faith that, with the blessing of Providence, neither the strict discipline of Oxford, nor the unfettered freedom of Padua, nor the profound abstraction of Salerno,—neither the predominance of the exact sciences which appears at one, nor the overweight of antiquated and mouldy speculation manifested at another, nor the preponderating influence of manner over matter, form over substance, as at a third,—is to be feared. Spread out before us is the history of a hundred nations, whence we may learn merits, dangers, safeguards, and cull the beauties and the sweets. A wise exercise of this privilege is earnestly to be desired; still under any system there will be a living force, a vital, shaping energy, which will soon mold everything to such conformation with the other institutions, the manners,

the habits of the age, as is needed for establishing the mutual relations through which all the blessings are to flow. In other lands and times this adaptation has been the work of a historic development. But in our land it will follow in like manner in immeasurably shorter time, from the increased vigor of all the influences which act upon the body social and politic; and, chief of all, from the great fact that it concerns no privileged class, but the whole people, among which and for which and by which it is to exist. No matter what the initial form, how great the advantages or the harm,—these are but for a couple of decades of years at the farthest. The university will contain a soul, a restless, striving, throbbing, impelling, shaping, creative vitality; and will become, not an Italian, nor a French, nor an English, nor a Spanish, nor a German, but pre-eminently an American university,—glowing with American fire, pulsating with American aspirations, and, strange as the words may sound to us to-day, radiating with what will then be American scholarship, American depth of thought, American thoroughness of research, American loftiness of generalization. For so surely as effect follows cause will all these follow in the train. It will bring the refining power of ancient lore and classic elegance to balance and counteract the all-pervading tendency to mere material science; it will leaven the tone of thought throughout the world, by introducing the precision of exact science where the vagueness and confusion of the schoolmen has long reigned; it will lift the philosophical and philological sciences to a far higher scope and standard as specialities, while it unfetters the struggling mind from the incubus of an antiquity which recognizes no progress, a conservatism which excludes all things which are or ever have been new. It will liberalize classic education, and yet be an unsparing foe to stagnation. For I assure you that there never existed a university which surrendered either to conservatism or to radicalism. Never an university which was not eminently nationalizing in its tendency; never one where influence was not toward a more thorough understanding of things foreign. Under the most absolute despotisms, the universities have been nurseries of political liberty; under the most intolerant of creeds, they have fostered freedom of thought. In the midst of license they have preserved the public morals, and in all times and places they have kept down that evil of our own days so well described as “intellectual anarchy.”

Scarcely had the new-born second Greece escaped from Moham-

medan thralldom and cast aside the tokens of her subjugation, when she hastened to confirm her independence, not simply by political organization and all the circumstance of legislation and of embassies, but by founding her university,—a university before there were any pupils. A score of years has not yet elapsed, but there are pupils now, who, attending the instruction which the state vouchsafes to all without price, are creating a Hellenic nationality. And now, in Athens,—where but yesterday exploded the Turkish shell and boomed the hostile cannon whose lingering echoes have yet scarcely died away from the reverberating marble cliffs of Parnes, Pentelieus, and Hymettus,—more than forty native professors are discoursing to nearly seven hundred native students, children of the foreign merchant, the Turkish slave, of the Klephtic robber.

This is the youngest of the race, the last of that long series which began where it has ended, where now,—beside the murmurs of Ilissus and Cephissus, amid the fragrant gales which breathe from Hymettus and Cithæron, within those very groves where Plato walked, close to those glory-crested heights which have resounded to the accents of Demosthenes and Pericles; yes, within the very shadow of the Parthenon,—has arisen again the temple of Learning and the offerings are again heaped upon her new-built shrine. The European cycle is complete. Let us pray that the American cycle may begin.

Mr. President and Brethren, my task is done. The opportunity which your kindness has vouchsafed me, to commend to your hearts the furtherance of the great work, was a privilege not to be alighted. Let us strive with all our powers, until that work shall have been accomplished, feeling that every effort, which by one jot or tittle advances the noble consummation, gives us a title to the gratitude of ages yet unborn, and to the consciousness that we too may be recorded *de patria bene meriti*. Found the American university, and throngs of European youth shall crowd its halls, carrying back with them American ideas to ennoble their own lands, bringing hither with them counterpoises of trans-Atlantic thought that shall ennoble ours, and both by their coming and their going, cementing the family of nations in bonds of mutual sympathy and attachment. Found it, though it cost the whole revenues of a capital. Let earth, air and sea bring their tribute; let California and India pour in their gold, and the busy marts of men their gains, till this great work is done. Thus shall we achieve the glory of a nation, the welfare of a continent, the advancement of a race, and crown the clustering hopes of humanity with more than full fruition.

never till their deaths. After a short residence at High Rock, the family moved in 1800 to Dedham. The grandparents were exceedingly fond of Warren, and he was affectionate and obedient to them. At the age of four he was sent to a Summer Institute School.

#### IV. EDUCATIONAL BIOGRAPHY.

Warren Colburn was born in Dedham, Mass., on the 1st of March, 1793. He was the youngest of his father's large family, had his parents, Samuel and Marcy Colburn, in his own family from the time he became a house-

WARREN COLBURN.

BY REV. THEODORE EDSON, D.D.

The Colburns were among the primitive settlers of Dedham, Mass. Nathaniel Colburn, the common ancestor, was a resident of the town as early as the year 1639, and was one of the Selectmen, from 1651, five consecutive years. He had eleven children, five sons and six daughters. All his sons married and settled in Dedham, and had children.

Samuel Colburn was the paternal grandfather of Warren. His wife was Marcy Dean. They lived together to an advanced age, and had twelve children. The last part of their lives was cotemporary with Warren, and they spent their latter days and died in his father's family. One of their sons was Lieut. Lewis Colburn, who served in the Revolutionary War, was a volunteer from Dedham for the suppression of the Shay's rebellion, and died, June 1, 1843, at the age of ninety-one.

Richard Colburn, the father of Warren, married Joanna Eaton, whose mother and his maternal grandmother was Mary Eaton, by second marriage Mary Dean; who was very favorably noticed by her pastor, the Rev. Dr. Lamson, in a printed funeral discourse, preached the Sunday after her interment. He says: "She was of old Dedham ancestry. She was a communicant of this church seventy-eight years; having been admitted August 30, 1772. She had naturally a strong mind, and clear perceptions; and, her faculties she did not suffer to rust out; and, there was but little failure of them to the last. Some indications of an infirm memory began to manifest themselves, but into the period of second childhood she never fell." She died, October 13th, 1850, in the ninety-ninth year of her age.

Warren, the first-born child of Richard Colburn and Joanna (Eaton) Colburn, was born the day his mother was twenty years of age, March 1st, 1793, in the part of Dedham called Pond Plain. Sometime in the year 1794 or 5, the family moved into Clapboardtrees parish, where they resided about six years. Richard Colburn, being the youngest of his father's large family, had his parents, Samuel and Marcy Colburn, in his own family from the time he became a house-



keeper till their deaths. After a short residence at High Rock, the family moved, in 1800 or 1, to Milford. The grandparents were exceedingly fond of Warren, and he was affectionate and obedient to them. At the age of four, he was sent to a Summer District School, and had care and charge of his sister, about two years old. The father was a farmer, and the son was early put to do a boy's work on the farm. At Milford, he began to attend the Winter District Schools while they kept. He was esteemed a good and truthful boy, and was never addicted to profane or foul language. His grandmother died suddenly at Milford, about the year 1802. His grandfather lived about three years after, and died in 1805, at the age of ninety-one years, when Warren was about twelve. From Milford, the family moved, about the year 1806, to Uxbridge. Here, as before, his occupation was on the farm, and his education chiefly what was afforded in the winter terms of the Common Schools, wherein his taste and expertness in arithmetic was manifest. This talent was discovered and encouraged by his father. Mr. Gideon Alby, a poor and infirm man, good at figures and used to teaching, was taken into the family for the purpose of giving Warren instruction in cyphering during the fall and winter evenings. He was already aspiring to a more extensive scope for enterprise than the farm presented. In about 1810, the family, on his account, moved to Pawtucket, R. I., where he was put to labor and learn something of machinery with Mr. John Fields, a machinist. There they lived about a year, and moved thence to Canton, 1812. They resided in the vicinity of the factory, where he found employment on machinery, and others of the children in connection with the factory. He remained at his occupation when the family moved to a farm near the line of Dedham, toward Walpole, and, not long after, to Webb's Factory, in the border of Walpole. In about 1813, during the war with England, and while he was in Canton, he learned to weave of Capt. Williams, a Norwegian, whose wife was an English lady. He went to Plymouth, in about 1814, where he wrought in machinery, which, being in the war time, was then rather a profitable as well as a rapidly extending business. From Plymouth he went to Easton, in the early part of 1815, still working in the same line of engagement at the factory in that place, and continued there some months after the declaration of peace. In the summer of this year, and, at the age of twenty-two and a half years, he began to fit for college. The Rev. Dr. Richmond, for about a quarter of a century the settled minister of Stoughton, discharged also from time to time the office of teacher, and fitted pupils for college. Under his tuition young Colburn placed himself. A fellow-pupil was

Henry G. Wheaton, son of Daniel Wheaton, Esq. of Norton, a gentleman of wealth and of education. The two pupils were soon friends; and the friend of the son was readily befriended by the father, who kindly arranged with Colburn to lend him such sums of money as he might have occasion to borrow for defraying his college expenses. It is said to have stimulated the son to the completion of his preparatory studies, so that the two might enter together, and be room-mates in college. Says Mr. Wheaton: "We lived together in the same room for about five years; at Mr. Richmond's, sitting for college, about one year, and four years in college; the most of the time engaged substantially in the same studies. Of course, being class-mates and occupying the same room, we were intimately acquainted, and met many times after leaving college, particularly while he was in Boston."

His college life, at this late period, will be best portrayed by such recollections of his class-mates as can now be gathered. Soon after his decease, there appeared an anonymous newspaper article attributed to Dr. Edward G. Davis, who was, at the time it was written, a practising physician in Boston, of respectable connections and standing, and who died in Philadelphia in less than six years afterwards, and before completing his thirty-seventh year. If any slight discrepancies or repetitions are discovered in the different sketches, the portraiture, as a whole, will not, it is hoped, be considered the less valuable. The following is the article of Dr. Davis.

REMINISCENCES OF A CLASS-MATE.  
Mr. Warren Colburn, whose death was recently announced in the papers, passed the years 1817 [1816] to 20 at Harvard College. It was there that he developed that fondness for the higher branches of mathematical studies, and that talent for analysis, which continued so remarkable in his after life. It is the impression of the writer that he entered college only with the usual preparatory knowledge in this branch; but, while there, he made himself master of the calculus, and read through a considerable part of the great work of Laplace. He commenced his collegiate course at the comparatively late age of 24, when both his mind and his character had reached a degree of maturity much exceeding that of the great proportion of his fellow-students. It was only by slow degrees, however, that his talents and his virtues made their due impression on the minds of those around him. With a sensitiveness almost allied to timidity, he shrunk from familiarity even with those with whom he most constantly held intercourse, and there are many who can remember, when the jest and the laugh went round, how little Colburn partook in the boisterous merriment. There was in him; a peculiar diffidence about obtruding himself or his thoughts upon others; a disposition to stand back, and, only when strongly urged, to join in the scheme which formed the attraction of the moment. Yet, was he possessed of great, nay, of peculiar kindness of feeling; no angry word ever escaped his lips, no expression that breathed of aught but benevolence and good will. A little circumstance, but one which is no doubt familiar to the recollection of all who knew him at the time, and which seems intimately interwoven with the general texture of his character, was a hesitation in speaking, slight indeed, but sufficient to make it an effort to him to express himself, and to call up an evident embarrassment when he attempted it. Many years after, when the writer again saw him, this hesitation of manner

appeared to be unaltered. It was no doubt one of the causes which rendered him shy of engaging in general conversation, nor did he, in conversing, always do justice to the vigor and force of his own thoughts. To this diffidence and slowness of manner was it owing that a just estimate of his powers was formed by only a very small proportion of his early friends. It was, indeed, known that he pursued his mathematical investigations with great ardor and zeal; and, his acquaintance with these subjects were, in some degree, made evident in his recitations. But the accuracy with which his exercises in the languages were prepared, and the foundation he was laying in the science of philology, were suspected only by a few of the more discerning members of his class. Yet, it was a fact, that he studied languages with no less thoroughness than the abstract sciences; and, the involved and difficult passages in Aristotle were analyzed by him with neither less care nor less success than the propositions of Newton and the formulas of Laplace. This circumstance was little known at the time, but may readily be believed by those who have noticed with what success his mind has recently been directed into similar investigations, resulting in the production of an elementary work on grammar; a subject to which it would hardly have been anticipated that a mind like his would have directed its energies.

His great and most interesting project, that of improving the system of elementary instruction in mathematical science, appears to have occurred to him during the latter part of his college life, and was the subject of painful thought, many years before his first work made its appearance. It required, indeed, no small energy of mind thus to break through the trammels of early education, and strike out a new path; for, Colburn, like others, had been brought up under a system the reverse of that which he now undertook to mature and introduce. This is not the occasion, nor is it the writer's purpose to attempt a criticism on the system itself. The author may have followed out a single principle more closely, and applied it more extensively, than the interests of education required. But, such was the readiness with which it was adopted, that, in the course of a few years, the appearance of these little books seemed to have revolutionized the mode of teaching elementary mathematics in the schools of New England. Various modifications have since been introduced into his plan, for which, whether improvements or otherwise, little credit can be claimed on the score of originality; and, it may with safety be asserted that, whatever in the present mode of teaching the science of numbers in our schools distinguishes it from that in use twenty years since, is mainly to be attributed to his publications.

In the constitution of Mr. Colburn's mind, many circumstances were peculiar. His mental operations were not rapid, and it was only by great patience and long-continued thought that he achieved his objects. This peculiarity, which was joined with an uncommon power of abstraction, he possessed in common with some of the most gifted minds which the world has produced. Newton, himself, said that it was only by patient reflection that he had arrived at his great results, and not by sudden or rapid flights. In Colburn this slowness and patience of investigation were leading traits. It was not his habit, perhaps not within his power, to arrive at rapid conclusions on any subject. If this tended, as probably it did, to impart to his conversation that hesitating manner which I have mentioned; if it made him appear more absent and thoughtful than quite befitting the animation of social intercourse, it yet had its advantages. His conclusions, reached slowly and painfully, were established on a solid basis, and the silent progress of time, that great test of truth, has served but to verify and confirm them.

Such, imperfectly stated, are the writer's college recollections of Mr. Colburn. He has little to add to them, derived from a knowledge of his subsequent career. He soon passed into a station in life which he was well qualified to fill, and the duties of which he conscientiously and ably performed. More extensive intercourse with the world served, no doubt, to divest him of some prejudices, and to improve his qualifications for social life; but, in seeing him occasionally during the last thirteen years, the writer found the exquisite simplicity of his manner still retained, and his habits of thought appeared to have experienced very little alteration. From the same mild, gentle eye beamed the same benevolence of expression, and the friend and associate of former days stood again confessed. Alas! that the recollection of the past can never more be refreshed by another meeting, that the form which is portrayed so vividly in the fancy of surviving friends, has passed from earth, and will be no more among men. But, while the present

generation remains, will that form be cherished in grateful hearts; and, even when all who knew his worth shall have departed, his name will be preserved, in connection with works; at once the evidence of the energy of his mind and of the benevolence which directed its application. He has performed a good work on earth, which shall not be taken from him, even when his remains, now slumbering beneath it, shall have crumbled to dust. Though dead, he will yet speak to those for whose instruction he zealously labored, while living; and, so long as education asserts its claims to respect among us, the name of Colburn shall be numbered among a people's benefactors.

The Rev. Benjamin Kent, of Roxbury, writes, June, 1856:—

Being older than those who entered college with us, and of nearly the same age, we soon became intimate associates. In our Junior year, we had a "part" together,—the translation of a Greek dialogue into English. I can, mentally, see the room, and the bland and loving countenance he wore when we were engaged together in our work; and, during our whole college life, whatever may be true of others, I never heard an expression of any feeling toward him than that of admiration for his dispositions, counsels, and intellectual gifts. It may, indeed, be said that he brought with him to college a decided taste for mathematics. We none of us ever thought of approaching near to him in this science. He early studied and made himself perfectly familiar with the French language, with a distinct view to mastering every French mathematician of promise which he had not met with or seen referred to. In saying this, however, I do not mean to say that he did not excel in every other department of a college education. He always ranked among the first scholars of his class in every thing but public speaking. "Oratory!" he used to say, with a soul-prompted smile and brilliancy of eye, "I am no orator, as Brutus is;" and we all lamented that his vast erudition, for so young a man, could not be freely communicated to a promiscuous audience, or sometimes even in the recitation room, in consequence of his modesty and a slight impediment in utterance. To sum up what I learned in the course of intimacy and friendship, which was never for a moment interrupted, I need only say, what I do say with the deepest sincerity, that he never gave evidence of carelessness in a recitation room, of unkindness to any one who applied to him for sympathy or counsel, or of envy, jealousy, or self-assurance, when a few others were selected to appear before audiences in higher parts than those assigned to him. Taking our studies altogether, I am confident that he had not his superior if his equal, as a scholar, gentleman, and Christian, in the class of which we were members.

The Rev. E. B. Hall, D. D., of Providence, May, 1856, writes:—

I have no memorial of him except those of the mind and the heart; but, they are very precious. His image and whole character stand before me as entire, definite, and life-like as those of any early friend, departed or living. Some of my associates in college have passed almost wholly from my memory; but, Colburn is as if I had seen him yesterday, or were at this moment listening to his slow utterance, but pleasant voice, and clear thoughts, in the recitation room, or the private interview. Though not peculiarly intimate, he being much my senior, and wholly unknown to me previously, I knew him enough, and was with him enough, to form the highest opinion of his character as a man of stern integrity, transparent simplicity, freedom from all guile or pretence, and invincible moral courage. I doubt if any force could have driven,—I am sure no lure could have enticed him into a single mean action or false word. There was no one in my whole college acquaintance to whom I should have gone more readily for counsel in any emergency, or to whose care I would more willingly have committed any trust. Colburn was not a splendid scholar, nor able to do full justice, either in speech or with the pen, to his own clear perceptions and actual knowledge. This was owing to a natural diffidence, small power of expression, and, as I suppose a want of early advantages. But, in clearness of thought, soundness of judgment, the habit of discrimination, and, above all, mathematical genius, he was surpassed by few. His position in the class was always respectable, and, in the end, high. He had as little ordinary ambition as any mortal could have. He loved study for its own sake, not for appearance or immediate effect. He was faithful to every duty, and, by a uniformly consistent deportment, and quiet, straightforward course, won

the confidence of all his teachers, and the respect of all his fellow pupils; while some were bound to him as by fraternal affection.

After our college life, I visited him once or twice in Lowell, and saw manifest tokens of ripened character and advancing intellect. He seemed to me to give promise of great usefulness, if not of high distinction. His death affected me as a personal as well as a public loss. A good impression of his features hangs in my study, but a better one in my heart. I should be sorry to believe that I shall never meet him again.

Mr. Sparks, ex-President of Harvard College, says, 1856:—

He was a student in college during about a year and a half while I was a tutor. I left Cambridge in the early part of his Junior year, and I do not remember to have seen him afterwards. All my recollections of him, as a student, in regard to his character, deportment, and scholarship, are of the most favorable kind. He held a high rank in his class, particularly in the mathematical department, in which I was an instructor. I was not then aware of his peculiar and remarkable gifts in that branch of science which he subsequently manifested.

The Rev. Dr. Gannett, under date of January, 1856, writes:—

Mr. Colburn was older than most of his class-mates, and did not form intimacies with many of them. Indeed, his only very intimate friend, as I suppose, was James G. Carter, afterwards of Lancaster, who died some years since. Carter and he, after "commons," would go off together for long walks, talking, as the rest of us believed, on metaphysical and mathematical subjects, in the former of which Carter, and, in the latter, Colburn was most interested. We all respected Colburn. He was, far and far away, our first mathematical scholar, and respectable in all branches. His moral character was stainless, and, it was taken for granted that he would do right; for, we looked on him as a man, rather than as one of us lads. He was always kind in disposition, and agreeable in manners; so far, at least, as my impression of him is just; but, he did not associate very much with his class-mates, and was regarded as an honorable, studious, and exemplary person, rather than as one with whom we could be very free. He used his time faithfully, and left college, I believe, without any occurrence to mar the pleasure he must have had in recalling his course through the four years.

Dr. Palmer, of Boston, Jan. 15, 1856, writes:—

Colburn's parents being in humble life and not blessed with this world's goods, (although they were highly respected by their neighbors,) he was dependent on his own exertions for a subsistence. He was brought up to the business of a machinist, at which he labored for some years. I know not what induced him to quit his business and determine to obtain a liberal education. He was fitted for college by the Rev. Edward Richmond, D. D., of Stoughton. But, in all the studies required for admission into college, with the exception of mathematics, he was illy prepared; for, he told me himself that he was only one year in fitting; having begun to study the Latin Grammar on Commencement Day, the year before he entered. The consequence was that, in classical studies, while in college, he never shone; but, in mathematics, he was, *longo intervallo*, ahead of all his class-mates.

The Rev. Dr. Furness, of Philadelphia, was also of the same class, and writes, Jan. 20, 1856:—

I remember him as, by a number of years, the senior of the majority of our class. He was respected by all. Every class-mate of his will bear witness to his manly character, and to his devotion to his favorite study.

He lived, in his senior year, I think it was, in Stoughton Hall, on the west side, not far from the college bell. I recollect his chum's telling us, one day, that he missed Colburn at morning prayers, then at six o'clock; he missed him at recitation, likewise, about half an hour after, and he missed him also at breakfast, at half-past seven. He did not know what had become of him, and supposed he had gone upon an early walk, and wandered too far to return in time for breakfast. However, his chum, upon returning to his room after breakfast, opened the door



of Colburn's study, and found him standing there at his desk, lost in mathematical studies. The bell had rung out its summons three several times, but, as he said, he had not heard it. We all believed it was exactly so. He was too unpretending and simple to affect any thing.

Again, I recollect being in Prof. Farrar's recitation room. After recitation, when the first scholar of our class stopped to point out a mistake in our text-book, Prof. Farrar agreed with him that it was an error. Colburn, who happened to overhear them, (he was the only other person, beside myself, in the room,) struck in and observed that there was no mistake. I remember I knew not which most to admire, the superior acuteness of Colburn, or the candor and interest with which, without any false pride, the Professor listened to his pupil. Of his great mathematical talent who does not know.

He took his first collegiate degree with his class at the commencement, in August, 1820. In the public exercises of the occasion, his appointment was ranked an honorable one. His "part" was "On the benefit accruing to an individual from a knowledge of the Physical Sciences," which he creditably sustained. The subject was assigned to him by the Faculty; but, probably selected with some view to its adaptation to his taste and turn of thought. The following passages are given as illustrative of his habitual thoughts and purpose.

The purpose of education is to render a man happy as an individual, and agreeable, useful, and respectable, as a member of society. To do this, he ought to cultivate all the powers of his mind, and endeavor to acquire a general knowledge of every department of literature and science, and a general acquaintance with the world by habits of conversation. And, this is not inconsistent with the most intense application to a favorite pursuit.

The Physical Sciences belong to all the professions; and, not only to them, but to all men, in every situation. There is not a human being, who has not something to do with these sciences. They are the science of life. Every child, as soon as he begins to learn any thing, begins to learn the rudiments of them. But, it is the rudiments only that he learns, the abstruse principles are to be discovered by patient and diligent study.

It is true, indeed, that a very large portion of the community have neither time nor opportunity to acquire them, by their own exertions; and yet, the greatest advantage might be derived from these sciences, in the hands of this class of citizens, because they possess the means of applying them more immediately to useful purposes. The knowledge of these sciences, therefore, is to be circulated by the favored few who have the means of knowing them; and, it becomes the duty of every one who possesses the means, not only to acquire them himself, and to do what he can to improve them, but to promote the diffusion of them among mankind, and to be always ready to give any information in his power concerning them to all who may need it.

The bent of his mind is here to be plainly seen. Education was the subject to which he was chiefly inclined, and teaching was his favorite pursuit. On leaving the university, he undertook the work of teaching, and kept a select school in Boston. He already had the experience of them who, working their way through a course of college education, resort to school keeping in the winter. He had taught in Boston, in Leominster, in Canton, and, thus early practiced, he soon became an accomplished teacher. His lecture on this subject, delivered before the American Institute of Instruction, in 1830, presents a



luminous view of his own mind and experience, and is well worthy the attention of teachers.

The number of his pupils in Boston was not large at first; and, did not, at any time, exceed from about twenty-five to thirty. His friend, Mr. Carter, in a letter of 1821, writes: "I congratulate you on your success in your school. From what I hear, as well from other sources as from yourself, I apprehend that you have a pretty strong hold on the good opinion of the respectable part of the community. There are few of us so well qualified, both by nature and education, as you are for this important station in society. My prayer is that you go on and prosper; and, take that elevated rank in society which your talents, your acquirements, and your virtues so eminently qualify you to maintain."

It was while engaged in keeping this school that he produced his "First Lessons in Intellectual Arithmetic." He must have begun to make the book about the time that he commenced the school. Perhaps the work was previously conceived. It was probably put to press in the autumn of 1821. His friend, Mr. Carter, Nov. 9, speaks of it as forthcoming; and, Dec. 15, as having been received by him at Lancaster.

Mr. Batchelder, of Cambridge, states: "I remember once, in conversing with him with respect to his Arithmetic, he remarked that the pupils who were under his tuition made his arithmetic for him: that he had only to give attention to the questions they asked, and the proper answers and explanations to be given, in order to anticipate the doubts and difficulties that would arise in the minds of other pupils; and, the removal of those doubts and difficulties in the simplest manner, was the foundation of that system of instruction which his school-books were the means of introducing." His "First Lessons" was, unquestionably, the result of his own teaching. He made the book because he needed it, and because such a book was needed in the community. He had read Pestalozzi, probably, while in college. That which suited his taste, that which he deemed practicable and important, he imbibed and made his own. He has been sometimes represented as owing his fame to Pestalozzi. That in reading the account and writings of the Swiss philosopher, he derived aid and confidence in his own investigations of the general principles of education, is true. But, his indebtedness to Pestalozzi is believed to have been misunderstood and overrated.

Upon the first appearance of the "First Lessons," his friend, Mr. Carter, of Lancaster, writes, Dec. 1821: "I shall see Dr. Thayer this afternoon, and, if I succeed to my mind with him, your book will be

immediately introduced into the academy here. I shall send my copy to-day to Rev. Mr. Clarke, of Princeton, who is quite engaged in the instruction of youth. I hope he will use his influence to introduce it in his parish. I think you will do well to send a quantity of them to the book-store in this town, for sale. I need not tell you that I am more and more pleased with your book, the more I see of it. I intend all my scholars shall use it, for I am convinced they have got the substance of it to learn, however far they may be advanced." On April 12th, 1822, Mr. Carter writes: "Your little book is still doing well. The bookseller told me, a day or two since, that he had sold a great many to go out of town. You must get out another edition as soon as possible, for I think they will be very useful in the summer schools. Let me know how you progress with your larger arithmetic, and how you get on with your algebra. I feel much interested in the latter. But, I have little doubt but you will do the subject justice."

Thus the "First Lessons" worked its way gradually to notice and favor,—a book which has enjoyed a more enviable success than any other school-book ever published in this country, and the merits of which are now universally acknowledged to be equal to its success. It has been said to be "the only faultless school-book that we have." It certainly has wrought a great change in the manner of teaching arithmetic. Its system is received wherever the book is known. It has no competitors, except in the profits of sale, in the shape of imitations; and, that these have been numerous is altogether to its credit. Such a man as George B. Emerson, after twelve years' constant use of it, long ago pronounced it the most valuable school-book that has made its appearance in this country. And, Thomas Sherwin, Esq., of the Boston High School, calls it, not only the best in this country, but, the best in the world. Its use is believed to be nearly commensurate with that of the English language, and it has been translated into other tongues. It has been stated that fifty thousand copies of Colburn's First Lessons are annually used in Great Britain; and, its sale in this country is about one hundred thousand per annum. About two millions of copies have been sold since its first publication in this country.

It will be seen that the Sequel and the Algebra were parts of his original conception, in connection with the First Lessons, and were in a state of progress as early as 1822.

He continued his school about two years and a half; and, though his teaching must be pronounced successful, as well by the testimony of his pupils as by that of his book, the production of that period; yet, owing to his retiring modesty and reluctance to putting himself

forward, his financial success was but moderate. And, though teaching was his favorite science, and an engagement of which he was fond, yet, says one who had opportunity to know: "I do not think he ever intended, even if he had had the greatest success, to make teaching his ultimate employment. I think that he always had a predilection for the pursuit which he afterwards followed; and, felt that, from his early practical knowledge, added to his scientific, he was well fitted for the occupation." Visiting in the families of his pupils, he was introduced to the late Patrick T. Jackson, who, with his quick perception of the qualifications and abilities of men, soon discovered in his new acquaintance the talents and acquirements adapted to a situation which he was then seeking to fill. Mr. Jackson offered him the situation of Superintendent of the Boston Manufacturing Company, at Waltham, with a much better income than he was deriving from his school. He accepted the place without much hesitation, and went to Waltham, April, 1823.

Here he was successful in his business, was much esteemed, and made some very valuable friends. Among these, now living, is Dr. Hobbs, who still cherishes impressions of him "as a man of great simplicity of character, honest and upright in all his ways, with a moral character without spot or blemish; a liberal supporter and promoter of science and the arts, always kind to children and poor scholars that were trying to get an education, always friendly to all institutions of morality, religion, and learning, his heart full of benevolence, and his mind ever active to promote the education and well being of the rising generation."

During his college course, he kept school on two occasions in Canton, Mass. In the winter of 1818, he had for a pupil Miss T. C. Horton, at that time residing there with her mother. An affectionate and reciprocal attachment was then commenced, which, after an acquaintance of about five years, resulted in their marriage on the 28th of August, 1823, about four months after his settlement in Waltham. The connection was a happy one, and marked with a very warm and tender affection, to the freshness and fervency of which there seemed to be no abatement. As well in health as in his last and only sickness, it was the same; and, to the very close of life, it was seen to gush forth from the fullness of his heart, so long as he had the power to give it expression.

On the 18th of June, 1824, the Superintendent of the Lowell Merrimack Manufacturing Company, Mr. Ezra Worthen, died instantly, while engaged in his ordinary duties. Mr. Colburn was appointed his successor, and removed his residence to Lowell as soon as he could be

conveniently transferred from his duties in Waltham. His removal was in August, that of his family in October.

He seemed to be well aware of the responsibility of his new position, as well in a more general as in a business point of view. In his general relations to the interests of the community, he was active and enterprising. He readily perceived and appreciated the peculiar character of a manufacturing community in New England, and projected at once a scheme of lecturing, adapted to popular improvement. His plan was to present common and useful subjects in such a way as to gain attention, and in such connection with science as to enlighten and furnish the popular mind. He proposed to occupy the space between the college halls and the common schools by carrying, so far as might be found practicable, the design of the Rumford Lectures of Harvard, into the community of the actual operators of common life.

Early in the autumn of 1825, and so along through the winter, he lectured upon the Natural History of animals. With an excellent magic lantern he illustrated the classification of animals, exhibiting on the screen specimens of the several classes, of the size and color of life, and pointing out, while the animal was thus before the company, its qualities, and the characteristic distinctions of its class. He lectured upon light; intermingling with statements of some of its remarkable facts, explanations and simple illustrations of some of its familiar phenomena. In a dark room, with his well-managed instrument, he exhibited the rays, applied lenses and explained their effect, illustrated the refraction of rays by refracting them to the sight. Some curious optical illusions were exhibited and explained. The structure of the eye; the use of lenses, the telescope, the microscope, were made intelligible to uneducated operatives by his successful experiments and simple teaching. He lectured upon the seasons; and, by diagrams thrown upon the screen, and a very simple orrery, of his own construction, and a skillful adjustment of lights, he illustrated the changes of the year; and, with his plain and lucid explanations, brought the subject to the comprehension of every observer. He took up the subject of electricity, and, with the help of a machine, taught and illustrated many things, which it is of practical use to know. The phenomena of thunder and lightning were presented to the comprehension and understanding of many who, without a thorough knowledge of the science, even as then developed, gathered enough to give interest to the storm, to allay unreasonable terror, and to suggest the ways of safety.

These lectures were given in the years 1825, '26 and '27. They

were commenced, at least, from two to three years, as is believed, before the subject of Lyceums, so-called, and of Lyceum Lecturing, was introduced in New England. The Middlesex County Lyceum, which was among the early associations of this kind, and of which Mr. Colburn was chosen one of the Curators, was formed November 16th, 1829. He had attended a meeting of gentlemen of the county, for maturing the plan, and contributed, from his own experience, important aid to the enterprise.

In the winter of 1826, what had been called East Chelmsford was incorporated into the town of Lowell; and, at the first town-meeting, held March 6th, Mr. Colburn was chosen one of the Superintending School Committee. It was of vast consequence to make a good beginning of the public schools of the town. The duties of the Committee, by the Statutes of the Commonwealth, and under existing circumstances, were arduous and responsible. The acting members were fully aware of their position, its difficulties, and its importance, and determined to discharge the office faithfully and to the best of their ability for the interests of the schools. Though laden with other cares, they spared not the labor nor the time. When the pressure of other engagements was upon them, they repeatedly held their meetings at six o'clock in the morning. Mr. Colburn served on this Committee the first two years, and contributed freely of his wisdom and pains to the favorable beginning and good condition of the schools. In town-meetings he took upon himself to look after the appropriation of money to the schools. He was customarily on the Committee for dividing the money to the several districts; and, frequently on other Committees pertaining to the interests of the schools. In 1831, he was elected again on the General Superintending Committee, and was, at his own request, excused from serving. While he was at Waltham, though withdrawn chiefly from the work of practical education, the subject continued to be his favorite study, and heavily taxed his leisure moments. He soon finished his second book, the "Sequel," which came out about the beginning of the year 1824, which is certainly a work of great ingenuity, which shows a great mastery of the principles of education, and which he himself considered a book of more merit and importance than the First Lessons. Of the Sequel, indeed, it may be said, not only that its true value has not, in general, been sufficiently estimated, but, that its actual influence on the use, the understanding, and popularity of the First Lessons has been appreciated only by particular observers. Whoever considers by what sort of management school-books are thrust into and out of the market, and how natural it was for book-

makers and book-publishers to feel that Colburn had received his share of profits, will easily see that the Sequel had a severer ordeal to pass through than the First Lessons, and much greater difficulty in holding the place to which, by its merits, it might be entitled.

After seven or eight years of successful experiment in the use of the First Lessons and Sequel, attempts were made in Boston, by imitations and variations, to supersede them, so that his friends applied to him to make some modification of one or both of the books, so as to obviate the objections which had been devised. Early in 1833, he directed his attention to a revision of the Sequel. He perceived that the objections most relied upon were based upon misapprehensions or misrepresentations of the distinctive characteristics of the book. He did not wish to make it an easier book, nor an essentially different book. That which he was laboring in his mind, was to make its distinct character more readily apprehended, without injuring it; contemplating also other slight amendments, in passing. That part of the labor which such a mind may work out, before putting pen to paper, except in scraps and hints, intelligible only to himself, he had already accomplished. His mind had penetrated to the result, with pretty good hope of being satisfied therewith,—had his life been spared to attain it. That the event was otherwise is much to be regretted by the friends of education.

Says Mr. Thomas Sherwin, Principal of the High School, Boston: "I regard Mr. Colburn as the great benefactor of his age, with respect to the proper development of the mathematical powers. Pestalozzi, indeed, first conceived the plan; but, Mr. Colburn realized the plan, popularized it, and rendered it capable of being applied by the humblest mediocrity. Indeed, I regard the First Lessons as the *ne plus ultra* of primary arithmetics. The Sequel is also a very good work; but, it needs a pretty intelligent teacher to make it eminently useful. In his Algebra, Mr. Colburn accomplished much, by rendering the study interesting, and by gradually leading the student to a knowledge of pure algebraical symbols and processes. Mr. Colburn did much to place algebra within the reach of the mass of learners. He introduced an original demonstration of the Binomial Theorem, which is a very good instance of the inductive method of reasoning. He commences with forming several powers of a binomial by multiplication. He then examines the law of the letters, also the co-efficients, and finds that the latter consist of several series of numbers, deducible the one from the other. The next step is to trace out the law of the different orders of series, show how to find any term, and the sum of any number of terms, in each series, and demonstrate the mode by



which one series, or any term of it, may be deduced from the preceding order of series. Finally, the laws thus obtained are applied to finding the co-efficients of any power of a binomial, and the usual rule for finding the successive terms is given. This investigation of series, tracing out the laws which characterize them, and the application of those laws to the Binomial Theorem, is entirely original with Mr. Colburn, and exhibits that acuteness of investigation, and that analytic character of mind for which he was distinguished."

He completed his Algebra in 1828, and, as himself remarked, he never in his life worked harder, and never accomplished more, from day to day, than he did then; when, in addition to the sedulous and faithful discharge of the duties of his place, as the Company's Superintendent, and other numerous incidental calls on his time, he was writing that work, and carrying it through the press.

It was not in one department only, but in teaching generally, that he sought and looked for the best methods. In his relation to the public schools, as one of the Superintending Committee, his attention was directed to the subjects of Reading, Grammar, and other branches. He published a series of selections from Miss Edgeworth's stories in a suitable form for reading exercises for the younger classes; in the use of which, the teachers were carefully instructed. He prefixed to each book of the series some instructions in Grammar. So that a system of Grammar for younger pupils was completed in connection with the Reading Books. These instructions were addressed to the teachers, that they, possessing their own minds with the beautiful simplicity of the system, might communicate the same, in its plainness and clearness, to their pupils. Thus, a very good notion of English Grammar was given to children, and their early proficiency therein, by this method, was scarcely less admirable than in arithmetic.

In the winter of 1828, his lectures, which, from the beginning, had been entirely free and gratuitous, were given in connection with the Middlesex Mechanic Association. He lectured upon Hydraulics, constructed an apparatus of considerable extent, exhibited several kinds of water-wheels, explained the power of water and its application as a motive agent, showed the principles of the Hydraulic Press, and gave numerous illustrations of the flow and the force of this element. He was invited to lecture in Boston on the same subject, and did so before the Mechanic's Charitable Association. He was heard by many intelligent gentlemen, who were curious to observe the practicability of presenting subjects of science to the popular mind. Although research and knowledge of his subject were satisfactorily evinced, yet, the presence of such a proportion of scientific gentlemen,

probably, somewhat disconcerted him; and, the failure of some of his experiments made him feel less at home than with a more popular audience.

His lectures, in the subsequent years, at Lowell, were many of them on the subject of Astronomy. Eclipses were lectured upon, as they occurred; and Comets, as they appeared. Says a gentleman of science: "I visited him once or twice, while he was at Lowell, and, on one occasion, assisted him in taking an observation of the sun, with his Reflecting Circle, for the purpose of taking the latitude."

In May, 1827, he was elected a fellow of the American Academy of Arts and Sciences. He was, for several years, a member of the Examining Committee for Mathematics, at Harvard College.

It was the early policy of the Manufacturing Companies to select, for Superintendents, men practically acquainted with their business. A very different policy has subsequently prevailed, that of appointing men of character and standing, perhaps of some general experience in business, but without practical knowledge of mechanics or manufacturing, and, consequently, dependent on the Overseers, whom they superintend, for such information in those departments as they have occasion for. In the one case, the Superintendent looks at the work, understands its quality, observes the Overseers, gives such instructions as are needful, and, if anything goes wrong, he is capable of knowing how and by whom it is to be corrected. In the other case, he calls together his Overseers, takes their several opinions, and makes up his mind thereupon. This is flattering to the Overseers, and may sometimes be turned to their advantage. The theory counts upon a gain by securing their influence with that of the Superintendent, in the community at large, favorable to the corporations. The arrangement may be more satisfactory to a portion of the operatives; but, whether more advantageous to the Proprietors, is by no means certain. It is like putting in the Supercargo to be master of the vessel, making him dependent on his subordinate officers for its navigation. It may do, in fair weather and plain sailing; but, it is doubtful whether the voyage be quicker made, with more economy or advantage to the owners.

Mr. Colburn was a practical mechanic, and not ignorant of manufacturing. To this he added a thorough course of classical and scientific education. With a view to all of these qualifications, he was chosen to his place. The last named may have been the occasion of a particle of jealousy. It was said, when he died, by one who had opportunity to know: "Few who have occasion to employ so many persons, possess their good-will and affection so extensively as he did."

This was true. He was much beloved by all in his employ, and most by them that had most frequent occasions of intercourse with him. His Overseers were strongly attached to him, and thought when he died that his place could not be filled. Had it been thought necessary to provide a man, in whom practical skill and science were combined in equal degree, as in Mr. Colburn, it would not have been easy. But, the same gentlemen Overseers, under the change of policy referred to, finding themselves in a very different relation to the Superintendent, and in a more agreeable and more advantageous position, it was natural that they should approve and even prefer the new state of things. And, equally natural was it that Mr. Colburn's very extraordinary qualifications for the situation which he filled, should have been less spoken of and less appreciated in the community at large. Had he lived, it cannot be doubted that his abilities and acquirements would have found no inconsiderable scope in his sphere as Superintendent. But, brief as his time was, his services were of signal advantage to the manufacturing interest. Several improvements of machinery in the spinning and weaving departments, which have proved to be of important and permanent utility, were introduced by him. In this position, he did not disappoint any reasonable expectation.

"The most of my intercourse with him," says Samuel Batchelder, Esq., now of Cambridge, but then sustaining a like position with Mr. Colburn, in the Hamilton Works, "was confined to the management of the manufacturing business, in which he was engaged during his residence at Lowell. His mathematical skill, and his knowledge of the principles of mechanics, gave him important advantages for the situation in which he was placed, and he was not less successful in his good judgment in the general management of business." Such, on this point, is the statement of one, than whom, probably no person living better knows, or is more reliable.

Previous to his removal to Lowell, it does not appear that his attention had been much directed to religious investigations; and, he was known to have had a decided distaste for religious controversy. The chief and absorbing religious discussion of his time, in Massachusetts, was that between the two extreme portions of the Congregationalists, the Trinitarian and the Unitarian, or, as they were called, the orthodox and the liberal. His tendencies were to the latter. When he began to study, and became in love of learning, his religious theory was, probably, little else than natural philosophy. In his Dissertation, at Commencement, he says, of the physical sciences: "No class of studies has done more to dispel the sombre clouds of superstition

which so long overshadowed the human intellect, and kept it groping in the darkness of ignorance and error; a darkness which sheltered fairies, witches, and thousands of malignant spirits, which afflicted and oppressed mankind; a darkness, in which the stars directed the destinies of men, and ruled them with resistless sway; a darkness, in which the Supreme Ruler of the Universe appeared only in his terrors, delighting in the miseries of his creatures, selfish and sordid in his views, capable of being appeased by vain ceremonies, and even with a price. The light which has beamed upon the world through the influence of philosophy has broken the spell by which they held the human intellect enslaved."

At the time of his removing to Lowell, there was but one congregation in the place, and that worshipping in the Episcopal form; and, to this most of the community then resorted. In the position which he occupied, the whole population of the village came more or less directly within the sphere of his influence. In these circumstances he perceived himself invested with a religious responsibility of serious extent and importance. He felt that the weight of his character and position must go into one scale or the other,—either for or against the religious interests of the people; that it was impossible for him to wield an influence that would be neutral in this regard; and, his ingenuous and comprehensive mind was at once made up as to the course which he consistently pursued. With the general reputation of the Episcopal church he was not unacquainted, with the Prayer Book he soon made himself familiar. In the discussions of his time, much use was made of the mysteries objected against the Trinitarian system, and he had himself felt the force of this popular argument. But, looking into the subject with his accustomed penetration, he soon perceived, and readily acknowledged, that no system of Theology, nor even of Philosophy, is free from mystery; and, that, in this respect, neither hypothesis had any advantage. And, in view of the authority of a Divine Inspiration, he determined to make the Bible the end of controversy, and to receive its revelations and its mysteries on the testimony of the sacred word.

Never having been baptized, his mind was exercised with characteristic ingenuousness and simplicity upon preparation for that solemn sacrament. After a very serious consideration, on Whit Sunday, June 3, 1827, he was baptized, in St. Anne's Church, publicly confessing his faith in Christ. He soon afterwards received the Lord's Supper, and was confirmed on the first subsequent opportunity. From that time he was a constant communicant, as he had been, and continued

to be a constant worshipper; never having been known to leave his chosen place of worship for the sake of attending on any other. He filled the office of Church Warden as assiduously as if he had no other engagement; and, in the absence of the Rector, repeatedly conducted the worship as a lay reader. His Christian character partook of the leading features of his mind. His religious affections were not subject to great excitements, for his mental operations were habitually slow and deliberate. They were strong, however, and deep, for his mind was strong and profound. Genuine simplicity is always amiable: when united with a vigorous and cultivated intellect, it is truly lovely; when found in connection with knowledge of the world and intercourse with men, it is as admirable as it is rare. Simplicity, under all these circumstances, was a marked and beautiful feature of his mind, and it pervaded his religion. His heart was open to religious influences, and his feelings were direct and truthful. They were not showy, for he was naturally reserved, even in departments wherein he excelled. His religious character was not wavering, because, having exercised his strong understanding in the simplicity of his heart, he acted conscientiously and consistently. His religion inclined to the cheerful, because the temperament of his mind was habitually so. The kindness of his natural disposition became benevolence in his religion, and induced him, in his quiet and unobtrusive way, "to set forward the salvation of all men" within his sphere of influence.

His cheerfulness in the social circle,—how he loved and enjoyed his select neighbors and friends in the familiar intercourse of evening recreations and readings at his own house, at theirs, will be remembered afresh by the yet living, who participated therein.

It was observed by his intimate friends that the labors and cares of 1833 were not sustained with quite his usual degree of physical vigor and elasticity. He was advised to take some relaxation, which he could scarcely be said to have done during his residence in Lowell. The summer was an inconvenient time for him to be absent, and he did not get away until the beginning of August. He then took a journey to New York and Philadelphia. But, his strength did not recruit. As he returned, on his way home, he was cold at times, and, when he alighted at his door, in the chill of the evening, from the stage which had brought him from Boston, August 23d, he went directly to his chamber, which he never left again. A fever, insidious and fatal, had seized upon him, and having run through a course of anxious fears, and trembling hopes, and assiduous attention, on the thirteenth of September, terminated his valuable life.

The next day there appeared, in a Lowell paper, of which the editor was Mr. J. Sleeper, afterwards of Boston, the following obituary:—

In this town, last evening, Warren Colburn, Esq., Superintendent of the Merrimack Manufacturing Company, aged 40 years.

Mr. Colburn graduated at Harvard, in 1820, and scrupulously fulfilled, through life, all the duties incumbent on him as a man and as a CHRISTIAN; and, his death will be severely felt, not only by his family, but by a numerous circle, to whom he was endeared by the ties of friendship and affection. It may be truly said of him that his mind was, intellectually and morally, of the highest grade. His labors to advance the cause of education are well-known to the world; and, his admirable treatises on Arithmetic and Algebra are acknowledged as standard works, and are introduced into almost all our schools and academies. Many important improvements in the machinery of our manufacturing establishments are the fruits of his scientific researches and ingenuity. Indeed, he was always devising plans to improve his fellow-citizens in knowledge and virtue. His heart was full of philanthropy, and his study, through life, seemed to be to do good. But, he is taken away in the prime of his usefulness. His pilgrimage is now over, and he has reaped the reward of the blessed.

Mr. Colburn had been a resident in Lowell for nearly ten [about nine] years; and, always identified himself with the interests of the inhabitants. The loss of such a man makes a chasm in society; and, years may elapse before it will be closed.

The following appeared in the same paper, September 16th, the day of his interment, and is from the pen of the late Elisha Bartlett, M.D., then a distinguished citizen of Lowell:—

"Dust to dust, and ashes to ashes," is the perpetually impending sentence of the Creator upon his creatures. And, amid more than common gloom, is that sentence this day uttered over the remains of the lamented COLBURN. It is not our purpose to enter into a history of the life, or to indulge in anything like an elaborate consideration of the character of our departed townsman; for, we have neither the means nor the ability requisite to the performance of this melancholy, but delightful duty: neither, as we well-know, can any poor words of ours lighten the sorrow or break up the darkness which his death has shed over a bereaved and afflicted family. But, in the privilege of friendship, we indulge the last sad pleasure of leaving our simple memorial to the memory of one whom we knew, and loved, and have lost.

Mr. Colburn was, in its best and broadest meaning, a *great* and a *good* man. To no other individual, either among the dead or the living, has the cause of education in New England been more indebted than to him. His mind was thoroughly imbued with the best of all philanthropy, that which labors to make itself operative and practical,—which is felt not only by its possessor, but by all within the sphere of its influence. He not only desired the improvement and happiness of his species, but he set himself to work out that improvement, and to place its consequent happiness in their reach. He did not indulge in indolent and unproductive dreams about the perfectibility of man; but, while he yielded to none in the ardor with which he wished to witness this consummation, he also, which is far better, yielded to none in zealous endeavor for its accomplishment. To judge of a man's character with any thing like fairness, we must take into the estimate the circumstances by which it would be probably influenced. These, in the present case, so far as they can be so under our institutions, were untoward. Mr. Colburn was not born amid the shades of academic bowers, and neither the smiles of the opulent nor the patronage of the great greeted his entrance into life; yet, he won his way honorably to the high places of science, and sat down, a peer, among the benefactors of his race. He was self-made,—the sole architect of his fortune and fame.

From these qualities of the head, we turn to those better ones of the heart, which, after all, constituted the principal charm, and the crowning excellence of



Mr. Colburn's character. Like the habitual smile on his countenance, he had a serenity of soul which could have been the result only of high honor, sound principle, and genuine piety. His moral worth, like his mental power, was quiet and unobtrusive, and no man ever bore his honors more meekly than he. His religion was the fruit both of feeling and of thought, and it shed a constant and celestial light over the "daily beauty" of his life. Rarely has it been our lot to witness the elements of all excellencies so harmoniously mingled. He is taken from us in the "midst of his days," in the prime of his usefulness, and, as in our short-sightedness we are accustomed to say, prematurely. But, why prematurely? How fully and how nobly has he accomplished the highest purposes of our earthly existence, and although, when measured by the lapse of years, his life has been short; it has been long, if we estimate it as we should, by its fruits and its issues. He lived the happiest and the most enviable of all lives,—that of the CHRISTIAN. PHILANTHROPE: he died the happiest and most enviable of all deaths,—that of the RIGHTEOUS.

The friends of the late Dr. Bartlett will recognize, in the above, the familiar and unmistakable features of his own mind and pen.

In a weekly religious paper, entitled the Observer, edited at the time by Rev. Mr. Rand, appeared the following, as editorial.

We are not used to the work of writing eulogiums upon the dead; but, our feelings instinctively urge us to say something respecting the man whose name is at the head of this article.

Warren Colburn, taken all in all, was a most wonderful man. There was in him a combination of qualities which rendered him a friend to all, and which commanded the love of all. His was not a life of inaction. He lived to some purpose. With a constitution little fitted to the rough and stormy scenes of life, he set himself to work in his own appropriate sphere, and no man ever accomplished more. We have understood that Mr. Colburn's early life was not spent, as we should conjecture, from his attainments, amidst all the advantages of schools and academics; but, that he labored amidst great disadvantages in these respects. He was strictly a self made man. His efforts were well directed and efficient in respect to the improvement of the young. His Arithmetic introduced a new era in the history of that science, and opened the way for the numerous systems which have since been raised upon his superstructure.

His series of reading books have been also extensively adopted in all our schools, and are well adapted to secure the interest and profit of the schools.

He was an agent of the Merrimack Manufacturing Company in this place; which has sustained, in his death, an almost irreparable loss.

His attainments were great in all the branches of Mathematics and general science, and the cause of education through the country owes to his influence much of its present prosperity.

His disposition was amiable, and his hand was extended to all, without distinction, who claimed his friendship. He always appeared smiling and cheerful, and we are assured that he scarcely ever seemed less cheerful at his own fireside than in public.

Such was Warren Colburn, in his scientific and social qualities; but, from what we have seen and heard we should presume that his heart was impressed with the importance of deep and fervent piety. If we are not mistaken in this, Mr. Colburn presented a singular instance of a mind bent upon literary attainments, and yet deeply imbued with a spirit of religion. We would that all our men of learning were as sensible of their own mortality, and of the need of a preparation for the future life, as he was.

But, he is gone. His remains are with us; his immortal spirit has, we trust, gone to expand its powers, and to make more lofty flights in a purer and holier atmosphere. He has built his own monument, and it will stand longer than the mementos which other men can raise to perpetuate his virtues. The breaches which God thus makes, he alone can repair. Let us look to him in all our affliction, as he possesses the sources of consolations.

These articles, occasioned by the event of his death, serve to give expression of the prevalent feeling as pervading different portions of the community at the time of his departure. He was interred in Lowell; but, his body was afterwards removed to Mount Auburn, where a modest and durable monument was placed by his literary friends over his grave, with a simple inscription.

There will be added a few general impressions from the reminiscences of surviving friends, as more recently expressed.

"There are few men," says his friend, Mr. Batchelder, "who, in so short and quiet a life, have done so much good, and rendered their name so familiar. I remember, many years ago, on visiting, with him, a school in New Hampshire, on the invitation of the instructors and others interested in the school, that when I introduced him to one of the Trustees of the Institution, he manifested much surprise at his youthful appearance, and asked, 'Is this Mr. Colburn, the Mathematician?' remarking that, having heard so much of him, and of the good he had done in the world, he expected to see a man with gray hairs and bent with age."

His friend, Mr. Sherwin, says:—

Mr. Colburn was remarkable for simplicity of manners and character, sincerity, a high regard for truth, and an amiableness which endeared him to all his acquaintances.

James Hayward, Esq., says:—

Mr. Colburn was a modest unobtrusive man. I was first attracted by his scientific tendencies and tastes. I then sought his further acquaintance. I was struck with the strength and clearness of his mind, and the tendency of his inquiries to the practical and the useful. And, I was charmed with his simplicity and directness, his perfect truthfulness and honesty of thought and purpose. He was a man in whom there was no guile. His simplicity and directness were seen in all his pursuits; as well in his business as in his scientific inquiries, and his intercourse with society. In all, he was a man *in earnest*. I remember that I early got these impressions of him, and used to embrace every convenient opportunity of being in his society. His love of science made his society both entertaining and instructive, and the simplicity and benignity of his character made it absolutely charming. I reckon it among the peculiar blessings of my life, that I have been permitted to enjoy the acquaintance and friendship of such a man. The tendency of his mind was to scientific accuracy; and, he exercised it in the higher subjects of philosophical inquiry. His attainments in analytical mathematics were eminent; and, it is known that, in his leisure from business, he applied himself to the solution of some of the most difficult problems in astronomical science. But, the tendency of his mind was, as I have said, to the practical in knowledge. His study was to simplify science,—to make it accessible to common minds; and, in my opinion, his elementary books are instances of great success in this way; especially the "First Lessons in Arithmetic." I hold in great admiration Mr. Colburn's character as a student in science, a practical philosopher, a man, and a Christian. These are the impressions which he made on me; and, the lapse of more than twenty years has not tended to efface them.

James A. Treat, Esq., of Pittsfield, N. H., says:—

When I left Cambridge, 1832, I went into Mr. Colburn's counting-room, and remained there until his summons came. While in his counting-room, I became better acquainted. I there began to appreciate the good and noble qualities of his character. There, with others, I was irresistibly drawn to love and respect him. There I learned to admire his uniform urbanity, his pleasant look, his kind word, in giving directions or advice. Even in giving admonition, if necessary, his kindness was seen and felt.

In my mind's eye, I can now see him at his office. I can see his mild and

placid countenance, at his pleasant home. I can see him at the lecture room ; giving instruction,—laboring hard and long for the good of his fellow-citizens. I can see his overseers, his operatives, his clerks, all having but one universal love and regard for him while living,—having but one universal tear at his departure. The eye of faith can now see him engaged in more exalted duties, and reaping a higher reward.

In personal appearance, Mr. Colburn was decidedly pleasing. His height was five feet ten, and his figure well proportioned. His face was one not to be forgotten. Persons have often been heard to say, were they artists, they could portray his countenance correctly. Dr. Furness, in his college reminiscence, says : “ We used to admire Colburn’s grand large eye.” The distinguishing features of his face were his eyes and his mouth ; both indicating the sweetness of his disposition, his benevolence, intelligence, and refinement. His manner was often abstracted, indicating intense thought ; but, when his attention was called to persons and things about him, it was always with a countenance beaming with love and benevolence. The Rev. S. B. Babcock, of Dedham, gives the following anecdote : “ I was a guest at his table, many years since, and he sat down to dinner in a silent, meditative mood, scarcely noticing his guests or his household. I supposed him rather destitute of conversational powers, and contented myself with looking upon, without listening to, the distinguished mathematician. About mid-dinner he suddenly exclaimed, ‘ I see it now : I think it will work.’ He soon informed us he had been inspecting a rotary fire engine ; but, did not quite understand the scientific principle. When his mind was at rest, he displayed colloquial powers highly gratifying and instructive.”

Of his hesitancy of speech, his friends were not so much aware as a stranger might be. He was not fluent in conversation ; neither was there any physical impediment. He used to say that he did not write easily, and attributed it to his want of early practice. Perhaps the hesitancy, which some observed, may have arisen from the like cause. In conversation, he was always desirous of using the most correct and expressive language, and endeavored to select the best words. In choosing his words, there was sometimes observable a slight wavering.

His disposition was remarkable for its evenness and serenity. Though possessed of great sensibility and feeling, he was never elated or depressed, but always cheerful.

The lapse of time has taken largely from the number of Mr. Colburn’s acquaintances and friends, and has buried in oblivion much that should have been seasonably recorded. One of the most intimate of his friends, James G. Carter, Esq., survived him about sixteen years ; and, in June, 1849, writing to Mrs. Colburn, relative to some

letters, &c., says: "You must find, or must have found, in looking over Mr. Colburn's papers, many more letters of mine, if they were preserved. They were not, probably, of much value, except as a transcript of my heart at the time: for, *no man* ever drew out my heart as did Warren Colburn. No one has ever filled the aching void made by his loss.

If I can aid you about it, [a small matter of business,] I shall be most happy to do so when I return from Michigan, whither I expect to go, with Mrs. Carter and Ann Eliza, next week. [He went on this projected journey, and never returned; but, died in Chicago, a few weeks after the date of this letter. He goes on to say.] So I cannot see you till I return. Then, why will you not come up to see us, and bring your daughters. Mary looks like her father; and, when I think of the long, unbroken friendship that existed between Mr. Colburn and myself, I cannot bear to have his children grow up without knowing them. Warren came to see me once or twice while he was stationed at Shirley, on the Fitchburg road; and, I once went over on purpose to see him, but he was off at some other post on his line of operations, and that closed my acquaintance with him. I have often inquired about him, and always hear of him as being a good character, and giving promise of distinction in his profession.

Our habits, pursuits, and associations may have led us far asunder; but, I always revert to my acquaintance with you and Mr. Colburn, with the greatest satisfaction, and often feel quite sad that such pleasant reminiscences should fade away without a stronger effort to revive and perpetuate them."

To revive and perpetuate the fast fading reminiscences of one so widely yet so little known, has been the purpose of this desultory article. If its perusal should awaken in the mind of any reader further recollections of one so deserving of remembrance, it is hoped they too may be put on record for preservation, in order so to increase the stock of material that some more skillful hand may weave these gathered shreds into a Memoir, worthy of the name and character of WARREN COLBURN.

#### IV. EDUCATION.—PERCEPTIVE FACULTIES.

Lectures Addressed to Young Teachers.

BY WILLIAM RUSSELL, LANCASTER, MASS.

[Continued from No. 5, p. 144.]

##### NATURAL CONNECTION OF THE PERCEPTIVE AND THE REFLECTIVE FACULTIES.

To enable his pupils to extend the exercise of *attention* into that of continued *observation*, is the great aim of the teacher, who works intelligently on the material of mind, with a view to elicit power of thought. As far as the discipline of the perceptive faculties extends, the end of culture is to create an *observing* mind; from which, in the beautifully perfect arrangements of the great Author of intelligence, spring, in succession, a *reasoning* and a *reflecting* mind. The latter, however, can never be obtained without due obedience to the Creator's law of succession, in the development of intellect. The materials of reason and reflection lie, to a great extent, though not exclusively, in the field of observation; and, a regard to the law of natural and healthy development, therefore, induces the teacher to look carefully to the first steps of his procedure in the processes of cultivation. Having used his best endeavors to vivify and invigorate the power of attention, by all appropriate means and appliances, he proceeds to the use of every genial method of confirming the tendency of the mind to maintain that faculty in *habitual action*; to stamp on the intellect, as a characteristic trait, an inquisitive and appropriating spirit, which examines and searches into all things within its sphere, aggregates their riches to itself, and ever comes home laden with results for the exercise of powers and faculties yet greater than itself; and, to which it is ordained to minister. It is thus that the mind becomes the delighted and conscious agent in its own advancement.

##### PROCESSES BY WHICH THE HABIT OF OBSERVATION IS SECURED.

The frequent solicitation of attention, by the presentation of attractive objects, would, of itself, as we see in Nature's unaided training of the savage, provoke a tendency to observe and to inquire. But, the action of the intelligent teacher, in aid of Nature, and in obedience to her dictation, is founded on a law of moral certainty, derived from the study of the laws of mental action. Understanding and relying

on the susceptibility of the mind to the influence of the objects by which it is surrounded, and the perfect adaptation of these objects to that end; and, aided, no less effectually, by that inward thirst for knowledge, that burning desire to observe and understand, which actuates the young mind itself, the enlightened teacher knows he has but to attract *attention* to the object which he wishes to employ as a material in the fabric of knowledge. Attention gained, secures *perception*; if the object is properly selected, and skillfully handled.

The volatility of attention in the immature mind, which, if unguarded, tends to mental dissipation and superficial observation, the teacher counteracts by genial measures, adapted to arrest and fix this subtle element of mental power, and carry it successfully forward, from step to step in observation, till the end in view in investigation is attained. The successive steps of the mind's progress, under the guidance of a skillful instructor, in endeavoring to arrive at the result of true perception, exact observation, and complete knowledge, are suggestively indicated in the process of investigating the structure of any visible object, and naturally present themselves in the following order: *examination, analysis, inspection*; aided by *interrogation, direction, and information*, and extended successively to the more complex processes of *comparison and classification*.

*Examination, as a Process in Intellectual Training.*—In the absence of the prompting and directing power of genial culture, it is true, perhaps, that most of our race are permitted to fill the measure of their days without one definite or quickening thought of the objects by which they are surrounded for a life-time. The peasant boy, who, of all human beings, is the most favorably situated for the contemplation and intelligent study of nature, seldom experiences the friendly aid of a suggestive question, that might lead him to appreciate the elements of intellectual wealth, in which the field of his daily labor abounds. Education has given him the ability to compute his wages, to read, or to sign a receipt; and, thus to meet the humble demands of his animal subsistence. It may even have afforded him some formal instruction in grammar or geography. But, it has not even hinted to him that, in "herb, tree, fruit, flower, glistening with dew," there are wonders of skill, and beauty, and power, fitted to fill his soul with delight, and to exalt him to a higher intelligence; that, in the bud, as it opens in spring, in the expanded blossom of summer, in the tinted leaf of autumn, in the shell which he picks up from the sand of the brook, in the very pebble which he "turns with his share, and treads upon," there are offered to his mind whole volumes of the richest knowledge, which the study of a life-time cannot exhaust.



An eloquent American writer, speaking of the advancement of education, says: "The time may come when the teacher will take his pupil by the hand, and lead him by the running streams, and teach him all the principles of Science, as she comes from her Maker." The teacher is here rightfully represented as fulfilling, in his humble sphere of duty, the highest offices of philanthropy and of religion. Such is the teacher's noble and beneficent function, in favoring circumstances; yet, not less when, yielding to the exigencies of life, he is confined within the walls of his school-room, but brings in Nature's apparatus from without, to give life, and meaning, and efficacy to his instructions, and win the young mind to the earnest and devoted study of the works of the Creator.

*Intellectual Effects Resulting from the Examination of Objects.*—

The zealous teacher, working with such light shed upon his labors, knows that, in presenting a product of Nature to the eye, he is presenting a germ of thought to the mind, which, under his skillful management, shall duly unfold, in leaf, and blossom, and ultimate fruit. He knows that, in the absence of a guiding suggestion, his young pupil may have looked a thousand times on that leaf, as a thing which did not concern him; on the shell, as only something queer; on the pebble, as an unintelligible intruder, perhaps, on his personal comfort; on the flower, as something pretty, that his sisters are fond of; on the fruit, as a sufficiently satisfactory morsel for his palate; and, that thus, in the great universal hall of learning, stored with library and apparatus, the orphaned mind may have sauntered away the precious hours of early life, without having been induced to study a single lesson, or engage in a single exercise. All this the teacher is well aware of; but, he knows, too, the hidden life and power that lie wrapped up in the little object with which, as a specimen from Nature's cabinet, he proceeds to magnetize the sentient intellects before him. He knows that, as surely as these susceptible beings are brought near enough to come within the range of action, they fall under the spell of its power, are charmed to rapt attention, and carried on, in wondering and delighted observation, till they are finally arrested by the grateful surprise of conscious knowledge, and advanced intelligence.

Is it a plant which forms the subject of the lesson he would give? He has but, by a striking question, to break the crust of habituation, which has blunted the perception of his pupils, and hinders their mental vision. He has but to ask them to *describe* its parts, in detail, as he holds it up before them, and he has gained the grand preliminary condition of effective perception,—attentive examination. As

the description extends its ramifications, the weed, which had been a thousand times trodden under foot, without a thought of its nature or construction, becomes an eloquent expositor of Creative mechanism and life; its parts become organs and channels of vitality,—a wondrous laboratory of chemical elements and action; the individual object becomes a member of a family, each of whom has his life and his history, his birth, growth, maturity, and decay; leaving, as the moral of his story, the parting suggestive question, riveted in the wondering mind, "Am I not wonderfully made?"

One such result,—and the more common the object which secures it the better,—one such result is sufficient to ensure a repetition of itself, in a thousand other instances. The ice of indifference is broken; and the observer may now see clearly, through the transparent water, the many-formed beautiful pebbles on the sandy bed of the stream. The time and trouble of examination, it is now found, are amply repaid in the conscious pleasure of intelligent observation; and, they are no longer begrudged. The mind has now become desirous to observe, examine, and explore. It has already set out on a career which, were all educators intelligent agents, would be ceaseless to all to whose advancement it is their part to minister.

*Example of a Successful Teacher.*—A most striking exemplification, in this respect, of successful instruction, was often exhibited in the devoted labors of the late Josiah Holbrook, who, although the very extent of some of his plans for the advancement of popular education may have rendered their execution difficult for the endeavors of an individual, yet was uniformly successful in his attempts to introduce the study of natural objects, as a part of early education in all schools. Trusting to the power of attraction and development latent within a stone, picked up by the wayside, he would enter a school, with no other apparatus of instruction provided; and, holding up the familiar object, would succeed, by means of a few simple but skillfully-put questions, in creating an earnest desire in his young audience to be permitted to look more closely at the object. He would then hand it to them, and have it passed from one to another.

Having thus secured the preliminary advantage of *earnest attention*, his next step would be, by a few more brief questions, to lead his little class to a close and *careful examination* of the specimen submitted to their notice; and, to their surprise and delight, to enable them to see that the bit of granite in their hands,—although but one stone to the eye, at first sight,—actually contained portions of three different kinds of rock. He would then give his pupils an unpretending but thoroughly effective exercise in *analysis*, by inducing them to point out

distinctly each component element, apart, and to describe, at the moment of doing so, its points of difference from the others, by which the eye might recognize and the mind distinguish it.

Another stage, in the well-planned lessons of this true teacher, would lead to a yet closer *inspection* of the component elements in the object of observation, by the presentation of separate specimens of each, in *comparison* with the smaller portions of them perceptible in the stone. The transparency of the *mica*, its laminated form, its beauty to the eye, would all come up in turn, for due notice and remark; nor would its peculiar adaptation to several of the uses and conveniences of life be overlooked. The *quartz* element, with its beautiful crystalline aspect and forms, its value as a gem, its wide diffusion in the granular condition, its presence and its effects in the composition of rocks and soils,—all briefly exemplified and enumerated,—would form a copious subject of instruction and delight. The *feldspar*, too, with its creamy tint and block-like configuration, and its valuable uses in the hands of the potter and the dentist, would come in for its share of delighted attention and studious observation.

Here was the true office of instruction faithfully exemplified. Here was genuine mental activity, on the part of the pupil; and, here were its natural effects,—vigorous, healthy expansion and development, together with the pure, natural, and salutary pleasure of intellectual exercise,—more dear to the child than even his favorite play. Here, too, were effectually secured the moral influences of culture, docility, order, regularity, voluntary attention and application, gratitude to the instructor for personal favor and benefit consciously received, an earnest desire implanted for the true and enduring pleasures which spring from knowledge, and the first steps taken in the life-long pursuit of science. The teacher, having put himself into a true living relation to the mental constitution of his pupils, could, without delaying for formal calls to order or attention, proceed, at once, to the benign office of his vocation, as the guide of the young mind. By a wise preventive method,—not by authority, rule, or penalty,—he secured the devoted attention and good order of his pupils, and, not less, their own happiness, their sympathy with him, at the moment, and their habitual reverence for him, as the living source of knowledge.

After one lesson, such as has been described, the substantial and durable effect resulting from it was usually perceptible in the fact that, on the dismissal of the school, the juvenile members of Mr. Holbrook's audience would be found resorting to whatever place they thought likely to furnish them with specimens such as he had exhibited in his lesson. This was almost universally the case when the

lesson happened to be given in a rural region, where objects of the kind in question were easily obtained. But, not less zeal for collecting specimens for juvenile cabinets, would sometimes be manifested in the more confined sphere of city life, an instance of which it would be difficult for the writer to forget.

An eager group of little collectors were scrambling for specimens around the temporary shed of the stone-masons occupied in the erection of a public building. They were busily replenishing their pockets with such pieces as struck their fancy, and stopping now and then to compare specimens, or each to examine his own more closely. Drawing near to the juvenile company of geologists, as their heads were clubbed together in earnest inspection of a specimen, the observer heard one exclaim, "Well, I do not think it is the right kind. For, you know, Mr. Holbrook said the way to spell granite was not *g-r-a-n-i-t-e*, but '*mica, quartz, and feldspar*.' Now, there is not a bit of mica in any of these stones." The observer happened to know of Mr. Holbrook's visits to the school to which the boys belonged; and, as he saw that the little students had just found their way to the exact spot in investigation where Mr. H. would be glad to meet them, so as, by means of a little closer analysis, to enable them to detect the difference between granite and "sienite," he relieved their anxiety by telling them that they had better not throw away the pieces they had picked up, but carry them to the school-room, next morning, and ask Mr. Holbrook to tell them why there was no mica in their specimens, and what those black specks were. One of the little explorers returned to his home, on the following day, to tell, with a face all radiant with intelligence, about the quarries of Syene, in Egypt, the quarries of Quincy, and those of the "Granite" State, and even to go into some details, in which neither of his parents was sufficiently versed in science to follow him satisfactorily.

*Analysis, in its Connection with the Discipline of the Perceptive Faculties.*—An eminent writer has truly said that a dwarf, behind his steam-engine, may remove mountains. Analysis is the correspondent power of the intellect. It is the grand instrument in all the operations of the perceptive faculties. It is observation working scientifically; and, of all the implements of science, it is the keenest in its edge, the truest in its action, and the surest in the results which it attains. It is the key to knowledge, in all departments of intelligence; and, perfection in its processes is the crown of glory on the head of him who stands foremost in the field of scientific research. Education, as the power which trains and forms the mental habits, has no higher

boon which it can confer, as the result of years of practice and discipline.

Valuable, however, as this process is, education, in the history of the past, could lay but slight claims to the merit of having formed the mental habits which it implies; since the means and opportunities of analytic intellection were withheld or neglected, to a very great extent, in consequence of the omission to provide the requisite objects and exercises for the discipline of the perceptive faculties. Education, while it consisted chiefly in arbitrary forms of exercise on abstract principles, connected with formulas in language and in number, drawn from the sciences of grammar and arithmetic, precluded the exercise of perception, by causing the learner to assume, instead of investigating, the primary facts of language and of number. At the present day, we obey the law of inductive procedure, and substitute personal observation and distinct perception for wide assumption and broad assertion. This is true of, at least, the modes and methods of all who profess to teach philosophically, as not mere instructors, but educators of the mind. Still, there remains much to be done with reference to the early direction and training of the intellectual faculties, so as to ensure the selection and presentation of the proper materials on which the intellect should be exercised in the first stages of its course of discipline.

Analysis, as a process of observant mind, implies the presence of objects which, by its solvent power, it is to reduce to component elements; and, as the real object, the fact, the actual relation, precede, in the order of nature and development, the ideal image, the intellectual abstraction, the logical deduction, early education in its primary operations, should conform to this law of order and of progress, and, in prescribing its first forms of exercise and discipline, should obviously draw its materials from the external universe of palpable realities, and not from the internal world of pure thought, in which the young mind possesses so little conscious power. Nor is it well for the mind that the habit of analytical observation and study, so indispensable to its successful action, in all forms of acquisitive exercise, should be deferred to the later stages of intellectual culture. Facility in analysis, acquired by practice on the accessible forms and relations of external objects, is easily transferred, by analogy, to the arithmetical exercise of resolving complicated numbers into their simpler constituent groups; or, the grammatical one of reducing a perplexing period to its primary elements, and these, in turn, to their component parts.

Progress in mathematical science and linguistic study, would be much surer and more rapid, if, instead of being demanded of the

earlier stages of mental progress, it were postponed to a period subsequent to that of analytical exercise, practised, for years, on objects perceptible to the senses.

Analysis, as the systematic process of examination, is one and the same thing, in whatever direction it is applied; its power as an instrument of discipline, is as fully felt in investigating the structure of a plant as that of a sentence; and, the intelligent teacher, while superintending such a process, will feel the same weight of obligation resting on him in the one case as in the other. He will, accordingly, be watchful over the manner in which the process is conducted, that it be not superficial, or hasty, or partial, but thorough-going, deliberate, and exhaustive, as far as it ought to extend; and, that it be furnished with faithful expression, or record, at every step of its progress. It is thus only that the indispensable broad line of distinction can be drawn, which gives certainty to knowledge, by separating what has been examined from what has not been, and measures what is known by what has been done.

*Inspection, as a Disciplinary Process for the Perceptive Faculties.*—When analysis has faithfully performed its peculiar task, and singled out for observation the very last component element in the object of investigation, there remains yet, to the attentive teacher, another stage of perceptive progress to be accomplished by his pupil, under the suggestive direction of a mind which has already traveled the path of knowledge. The searching *inspection of the individual elements* which compose a complex whole,—an inspection so minute, that each element may be described and defined in its distinctive unity of constitution and character, and, in the clearly traced relation which it bears to the whole, as well as in each of its own chief characteristics, or prominent features,—becomes, perhaps, in turn, an element in some wide-sweeping induction, for purposes of comparison and classification.

Elementary botany,—that which a young child is perfectly competent to study, and which requires but the seeing eye and the attentive mind, to examine and describe the different parts of a plant, or even a root, a stem, a bud, or a leaf,—abounds in the best of materials for exercise in close and minute examination of details. To render this process a tendency and a habit of his pupil's mind, is here the office of the educator. Yet, this is but one of the numerous resources of nature on which he may draw for the cultivation of the highest traits of intellectual skill and expertness, as attributes of the young minds, which it is his business to train to the highest pitch of mental power to which he can raise them.



In the examination of a plant, for example, he does not limit the attention of his pupils to the mere analysis of the whole into its parts. Every part, separately, he makes an object of distinct inspection and investigation, in every light in which observation or science enables him to hold it up. No feature of individual character is suffered to escape notice,—no detail, how minute soever it may be, in which it differs from, or resembles, a correspondent point of form or function, in another specimen of kindred character.

In lessons on animal life,—to use another example,—the juvenile student, under the charge of the watchful teacher, is directed to observe the fact, which minute inspection discloses, that, in one instance, where he would naturally, at first glance, think that he has seen two *feet*; he will actually discover, on closer inspection, two *hands*; that, in observing the figure of the chimpanzee, he has been contemplating neither biped nor quadruped, but a quadrumanous (four-handed) animal; and, that this distinction is founded chiefly on the careful examination of the member which he had been accustomed to call a *toe*, but which is, in reality, a *thumb*, designed to aid in the actions of grasping and climbing, which are so important to the animal's mode of life. The close inspection of one member thus becomes, for the time, the turning point on which the young student depends for the recognition of a grand distinction in nature, and for the true understanding and proper appreciation of the scientific term in which this distinction is recorded.

*Interrogation, as an Instrument of Intellectual Discipline.*—In the language of general writers on subjects connected with the experimental and tentative processes of science, man is said to *interrogate* nature. The figure is a most suggestive one to the teacher, with reference to his business and duties. It presents man in his appropriate attitude of an attentive and docile child of Nature, inquiring trustfully of her concerning the causes which lie too deep for mere intuition, but which her maternal spirit is ever ready to reveal to earnest desire and faithful endeavor. The human parent and the teacher stand, to the young mind, in the same oracular relation, as expounders and interpreters of the great volume of creation. But, how seldom is the inquiring spirit of childhood encouraged to avail itself of its lawful provision for the furnishing of that knowledge which it consciously craves, as the sustenance of its life! How seldom does the teacher feel the full force of the obligation which the inquisitive habits of childhood lay upon him, to encourage the spirit of curiosity which prompts the many questions of the child! How seldom does he feel that his business is to incite, and stimulate, and prompt, and enliven,

in every way possible to him, this primary instinct, which impels the mind toward the goal of knowledge! How seldom does he enter into the spirit of the wise suggestion of the poet; and, even when in the very act of feeding the intellectual appetite, so contrive as "by giving" to "make it ask!"

*Book Questions.*—The teacher is not usually so remiss in regard to the importance of interrogation, as a stimulus to intelligence, so far as concerns his own resort to that process. Far from it! He knows its value, as a pointer or guide-post, to definite results. Nor are there wanting instructors so reliant on interrogatory forms, and so distrustful of their own power to devise them, that they conduct the whole business of a lesson, following literally the numerous questions printed on the page of the text-book. Such questions, it is true, are not to be despised and rejected in the wholesale style in which they are sometimes disposed of by the young and sanguine teacher, who has just begun to see their inadequacy to the purposes and wants of personal instruction. The printed question, even when extended to minutiae, may be rendered very serviceable to the formation of habits of faithful application and close study, as well as accurate recapitulation; if the young student is directed to make use of it as a test, in regard to the exactness of his preparation for a personal examination on the subject of his lesson; if he is duly trained not to regard the printed question as merely the teacher's part in a verbatim mechanical dialogue between the master and himself, in which the last word in the sentence of the one speaker forms the literal "cue" to the first word in that of the other, but, as a criterion of his knowledge of the subjects, as a friendly intimation that, if he can not furnish an answer to the question before him, he is so far deficient in his preparation to give intelligently an account of the part of the subject to which the question refers.

*Children's Questions.*—But, it would be more to the purpose of the young teacher's business, if,—instead of the printed aid offered to him in what should be his own part of a lesson, and which, if he respects his own mind, he will draw only from his own resources, according to the needs of the pupil,—the page of the text-book abounded, rather, in the questions which *children* would like to ask, for their personal information. The judicious instructor will always make free use of interrogation, as a means of ascertaining or aiding the degree of his pupil's intelligence. But, he will not overlook the fact that this process, like that of the printer, in taking his proof impression, is to certify a result,—not to create it. The questions which the child is permitted or encouraged to put to his teacher, are,

often, the sole means by which the former is enabled to "set up" accurately in his mind the facts of the lesson required. The number and the closeness of these questions become, further, the expression and evidence of the interest which the pupil takes in the lesson. To the teacher who possesses the patient and sympathizing spirit of his office, these questionings come gratefully to his ear, even when they betray the "blank misgivings of a creature wandering in worlds not realized." It is then that he is most impressively reminded of the true nature of his work, as an intellectual guide and conductor. He is ever careful, therefore, to provoke, rather than repress, interrogation; and, even so to frame his own questions that they shall serve to call forth fresh inquiries from his pupils.

The appropriate discipline of the perceptive faculties, depending, as it does, on the frequent presentation of objects of sense, with a view to win attention, and secure exact observation, implies that the teacher resorts, on all occasions, to close questioning, as the suggestive process by which the pupil is induced to use his own perceptive power, to rely on the fidelity of his own observation, and thus to acquire a knowledge which is substantial and thorough-going. But, it is not less true that, in proportion to the pupil's interest in the efforts which he makes, and the progressive steps which he takes in every process, his very attainments will be suggesting and prompting further inquiries, for his future guidance. The spirit and intelligence, as well as the pleasure, therefore, with which he proceeds in his work, will depend, to a great extent, on the consciousness that he is not working in the dark.

*Mode of Answering Questions.*—The answer to the pupil's questions, however, the true teacher is well aware, is not always to come from the lips of the instructor. It is often left intentionally to be the fruit of the learner's further efforts and closer examination. To withhold an answer to the most eager question, is sometimes a truer kindness than to give it. The ripe and perfect fruit of knowledge must sometimes, like that of the tree, be patiently waited for, and wrought for.

*Leading Questions.*—The wise teacher, however, will know as well when to put the skillful leading question, which does not supersede, but rather calls forth the activity of the pupil's mind. The leading question, though unlawful at the bar, is, under the management of the prudent teacher, the very turning point, in some cases, which decides whether he is "apt to teach," as an intelligent guide to the results of actual knowledge and true discipline.

*Direction and Information, as Didactic Processes Connected with the Exercise and Discipline of the Perceptive Faculties.*—The answers

given by a judicious teacher to the questions of his pupils will often consist in references to the sources of information, rather than in direct replies. In the study of natural objects, it is peculiarly important that the pupil should see, and think, and judge, and discover, for himself. To such training in self-reliance and self-help, the exercise of the perceptive faculties on the details of form in animal, plant, and mineral, is preëminently adapted. The embarrassing complexity and intricacy, and the baffling abstruseness, and the perplexing obscurity, which sometimes characterize other subjects of investigation, and which call so loudly for the teacher's frequent aid to his pupil, do not exist here. The simplicity and the beauty of nature's products, invite and attract attention; and, every successive stage of examination leads unconsciously to another. The teacher has but to indicate and to prompt, and thus leave the mind the rich satisfaction of achieving its own progress. He is not tempted to fall into the besetting sin of instruction,—that of anticipating, and assuming, and asserting, and so quenching the mind's healthful thirst by the lukewarm distillations of precept and rule, instead of leaving it to refresh itself by drinking at the cool, vivifying fountain-head of original observation.

An eminent naturalist once gave a very impressive lesson in the art of teaching to one who is himself, professionally, an instructor. The question proposed to the savant was, "How may we distinguish snakes which are venomous from those which are not?" "Come into my study," was the answer, "and I will place before you some of each kind; and, then, by examining, you can see for yourself." It is thus the true teacher proceeds with his pupils: it is thus he gives certainty to knowledge, and clearness and vigor to the mental faculties.

As a guide and director of the mind, the intelligent instructor points his pupils to the sources from which he himself obtained information, and thus admits them to the honor of partnership with him in investigation and accumulation. Teacher and student thus become allied by friendly participation in the same pursuits; and, a high, though unostentatious, moral effect is blended with the cultivation and enjoyment of intellect.

The teacher, however, who thus wisely throws his pupils, as far as practicable on their own resources, does not thereby preclude the ample furnishing of all needed information, which intelligent appreciation and successful application may require. He will, on the contrary, take pleasure in disclosing facts, in tracing analogies, and furnishing explanations, when these serve to give additional value and attraction to the theme of his instructions. He will thus contrive, at once, to satisfy and to stimulate the mind's natural craving for knowledge, and

make every step of progress the foothold and the impulse to yet another. He will still be careful, however, even when imparting direct information, to confine it within those limits which shall leave a wide and inviting field for the pupil's own investigations, and secure his personal interest in future explorations, which may subserve the important purposes of acquisition, as connected with attainments in the various departments of education, or with those advances in science which may form a large part of his own conscious happiness, and contribute, ultimately, to the general diffusion of knowledge.

*Comparison, as a Disciplinary Exercise of the Perceptive Faculties.*—The unity of the intellect, as a principle in the human constitution, forbids any attempt at literal or exhaustive analysis, in the study of its diversified character and modes of action. In educational relations, more particularly, all attempts at the analytic observation of mental phenomena, for purposes of intelligent and healthful culture, must ever be regarded as merely analogical presentations and figurative expositions. The successive stages of mental development and discipline, in like manner, are incapable of being cut apart and separated by any dividing line of demarcation. On the contrary, they naturally blend into one another, with a closeness of connection, and a delicacy of shading, which does not admit of precise distinctions, or marked discriminations.

When we group, therefore, the various modes in which intellect manifests itself in action, and designate one of these groups by the term "perceptive," and another by the term "reflective," we recognize a distinction, with regard to which, even a superficial observer of the mind's activity, would not venture to say that it is not founded on an actual difference. Still, we should find it extremely difficult to lay down a precise line of demarcation, and say with certainty, in every instance, here terminates the perceptive, and here commences the reflective action of intellect. Thus, in assigning its place to the master faculty of intelligence, we should feel no hesitation in ranking *reason* among the reflective faculties. But, when this noble power descends, as has been so happily expressed, to the humble office of "judging according to sense," it necessarily partakes of the character of the class of faculties with which it mingles in action. It constitutes, thus, an element and a condition in *perception* itself; as is verified by the consequences of its absence, in the intellectual action of the insane person, who distinctly enough *perceives* the form of his friend, but, in the inexplicable aberration of reason, salutes him as a foreign ambassador, come to do him the honor of a visit, in consideration of his world-renowned skill in disentangling complicated questions in state policy.

Comparison combines, usually, an act of volition with the process of observation, directed to two or more objects, for the purpose of recognizing their unity or diversity of character; and, hence, is properly regarded as but the preliminary or introductory step to the act of *judgment*, which pronounces the case one of analogy or anomaly. It is not unusual, therefore, to class comparison as purely an act of judgment, or decisive reason; and, by its office, a *reflective* faculty. As a process of intellection, however, it obviously commences with the perceptive act of attentive *observation*; and, as a disciplinary and developing operation in mental culture, it falls under the special care of the educator, as an exercise in the early training and forming of intellectual habit.

*Proper Rank of Comparison, as an Intellectual Process.*—Regarded in connection with the study of natural objects, the act of comparison, is an exercise of the perceptive faculties, which, in the order of intelligence, is the immediate sequel to the processes of examination, analysis, and inspection. These, indeed, are but the legitimate preparatory stages for its wider mode of action, and higher offices in the sphere of intelligence. Yet, in its turn, it is but the humble ministration of intellect to the yet higher offices of *classification*, under the guidance of the master function of *induction*, which presides over all the varied forms of intellectual activity, connected with the observation and study of nature.

*Intellectual Effects of the Discipline Resulting from the Exercise of Comparison.*—Comparison, as a process of intelligence, commenced under the watchful eye of the teacher, on the objects of perception,—the only sure and firm ground of early mental development,—gives a certainty and a skill to the perceptive action of the mind, which tell, with sure effect, on all analogous operations of a more purely intellectual or even an abstract character, in later stages of education. The influence of the habit of careful and exact comparison, extends, with full effect, to the highest efforts of mature mind, in the most complicated and intricate relations of thought, in mathematics, in logic, and in language. Comparison, as the first step in the higher progress of the mind, when making its transition from the study of single objects to that of numbers, and grouping them, by their *analogies*, in *classes*, brings the intellect under the dominion of *order*, introduces it to the discipline of *method*, and ultimately rewards it by the recognition of *law*. *Principle* and *rule* then take charge of the intelligent mind; and, as “strong siding champions,” beat down every barrier to its progress toward consummate knowledge.

*Natural Objects peculiarly adapted to the purposes of Comparison, as a Disciplinary Exercise.*—As means of discipline for the perceptive



faculties, in various modes of comparison, the materials for practice, furnished in the different departments of nature, are peculiarly adapted to the great ends of education. Their mutual resemblances and contrasts, the prominent features of their correspondent forms, seem to solicit comparison and classification, as destined results of man's mental adaptation to the scene in which he moves, and which so abounds in objects of attractive interest,—the germs of intelligence, enveloped in consummate beauty, that they may lead to the conscious delights of knowledge.

By the introductory discipline resulting from the humble exercise of carefully comparing objects and their characteristic parts, the young mind receives its preparation for the scientific intelligence and the conscious pleasure with which it subsequently enters on the wide range of action afforded by the inviting analogies revealed in the study of comparative physiology and anatomy, and in all investigations to which science conducts, wherever exact classification and consummate knowledge are dependent on attentive and faithful comparison,—a condition equally indispensable, whether in collating the vestiges of past eras in the physical history of our globe, or those of language and of intellect, as revealed in the investigations of philology.

*Classification, as an Exercise for the Discipline of the Perceptive Faculties.*—This form of intellectual action,—which, in its various aspects, may be said to constitute and to consummate human knowledge, in whatever department we contemplate,—is the immediate sequel of the preceding act of mind, in collating the objects of observation, or their peculiar features and characteristics. The resemblances which comparison recognizes in objects, become the leading titles and significant designations of groups and classes. Intellect is thus freed from the burden of the endless and unsatisfactory task of wandering from object to object, in detail, without any conscious thread of connection or guidance, and without any suggestion of a definite end in view, in its wearisome mode of action. By the aid of classification, the chaos of disconnected individualities is converted into an orderly creation, where everything, as of old, is seen to exist "after his kind." Knowledge thus becomes a series of aggregated accumulations, arranged and labelled to the intellectual eye; and, investigation is rendered a rational and inviting pursuit,—directed by definite aims, and leading to satisfactory results.

*Benefits of Classification, as an Intellectual Exercise.*—By the process of classification, man is enabled to trace the successive footsteps of the Creator in the outward world, to recognize the grand law of universal order, and yield obedience to its dictates in his modes of

mental action. The student of nature, pursuing his investigations in this spirit, is prepared, by successive illustrations of fact, to amplify his classifications into those wide inductions which are the glory of science, and which aid the intellect in accomplishing the vast generalizations for which its powers of comprehension and its ceaseless aspirations seem equally adapted.

The exercise of classification tends to create in the young mind the love of order and method. It is, in fact, a strictly logical discipline, resulting in the highest mental benefits, and preparing the heart for the influence of the most exalted moral principle. It belongs, however, as a process of mental culture, to a very early stage of intellectual progress, and begins appropriately with the first conscious steps of advancement in the observation and study of nature. The child, in Nature's great school, finds himself placed in a vast cabinet of specimens, which he takes a peculiar pleasure in examining, and from which, even when little aided by formal education, he draws, with delight, stores of personal knowledge, and the pure pleasure of the conscious activity which his spirit craves.

The objects of nature, as the results of a designing Mind, seem peculiarly adapted to the end of drawing forth the action of intellect and building up intellectual character in the human being. In no respect is this more true than with reference to the facilities furnished in the three great kingdoms of nature, for the purely intellectual processes of arranging and classifying the objects of observation. The young mind here finds itself placed in a sphere of order, in which every thing is arranged for the correspondent action of thought; in which every object invites to observation, and every group solicits a recognition of the principle of classification.

*Early Training in Classification.*—Furnished with such an apparatus for the purposes of instruction, the teacher has but to point suggestively to the successive classes of objects most easily accessible to the young learner in the great classified receptacles of earth, air, and water. He has but to encourage his pupil to collect, compare, and classify the various forms of mineral, plant, and animal, which lie within the range of his daily walks; or, even to deposit, in any convenient and suitable receptacle, groups of leaves of similar form, and to define the shape or the feature which, in his distribution of them, is made the ground of classification. The learner thus obtains a measure and a record of his progress in knowledge; and, the knowledge which he acquires, possesses a true and substantial character, which, in turn, affects that of his mind, giving it a taste for solid acquirements and genuine pleasures.

## V. HOME EDUCATION.

We hope to make this Journal a valuable auxiliary of the home, and of parents as well as of the school, and of teachers, having been long satisfied that the importance of home culture both direct and indirect, the unconscious as well as the designed tuition of parents, brothers, sisters, and companions, was strangely overlooked in our efforts to improve school-houses, text-books, and teachers, and the organization, and administration of schools, and that most of the tough and perplexing problems of public instruction and discipline would be solved, if not entirely anticipated, by proper domestic training. For the present we can not do more or better than to commend the whole subject to the thoughtful consideration of our friends, and to ask the cordial coöperation of the community with the labors of Rev. Warren Burton in this field. Of him and his labors, the Massachusetts Teacher for June thus speaks:

### REV. MR. BURTON'S LABORS.

"Among our most valuable educational gatherings, are those that are assembled from week to week, by the Rev. Warren Burton, or through his influence. Mr. Burton must be counted among the truest benefactors and most disinterested philanthropists of our age and country. The time for writing his biography has happily not yet come, and we hope, for the welfare of our own and of coming generations, that it will be long deferred. Yet there are some things which we may be permitted to state.

Mr. Burton was born in Wilton, N. H., a small town, which with a population, even at the last census, of only 1,161, has yet sent between thirty and forty of her sons to College, and may be proud of not a few of them as men of mark. He was graduated at Cambridge, in 1821, and afterwards entered the ministry, but not without preliminary experience as a teacher. During the thirty years of his ministry, he has, with, we think, only one exception, refused to be settled, that he might be more at liberty, after the example of his Master, to "go about doing good." He labored, for some time, in the self-denying office of a city missionary, in Boston and Worcester.

Of the writings of Mr. Burton, that which is best known, and has been most widely influential, is "The District School as it was, by One who went to it." Though first published twenty-three years ago, it has lost none of its freshness. The old school-house on the top of

the hill, sweet Mary Smith, *Tholomon Icherthon* learning his letters, Memorus Wordwell spelling Jonas, the Snow-balling, Mr. Silverson going out of church, to mention no more persons and scenes, are depicted with such minute naturalness, such bewitching humor, and such good intent, that though read and re-read, they cannot cease to delight. For our own part, however resolutely we may begin, we can not get through the spelling of "A-bom-i-na-tion," as syllabified by Jonas' axe, and terminated by the flying of the chip to Memorus' nose without having our gravity completely upset.

"Scenery-showing, in Word-Paintings" is quite different in its character, but perhaps no less admirable in its way,—a charming series of landscapes in words. Whatever he delineates, Mr. B., holds a pencil of admirably graphic power; and its movements seem to be all devoted to the service of the True, the Beautiful, the Pure, and the Holy.

Six years ago, he felt that he must give up even this work for one in which he was still more needed, and where it might be necessary for him to live still more "by faith." He saw that with all the revived educational zeal of the time, with all the improvements in schools and modes of teaching, the great subject of HOME EDUCATION was comparatively neglected, and that this neglect was threatening to thwart, in no small measure, all our other efforts for the right training of the young, and to introduce consequences most disastrous to the rising generation, and through them to our country in successive ages. He saw no laborer specially devoted to this field; and he, therefore, resolved to go forth and enter upon it, though single-handed, without property to sustain him, and with no society to uphold him. His first going forth for this great object was from Worcester, in the spring of 1850, with credentials from the Mayor and City Council, and from nearly all the clergymen of the city. Attestations to the need and the usefulness of his labors have since been abundant, and from men of the highest rank in State and Church.

The plan which Mr. B., has especially urged in his lectures and circulars is the following: that during the more leisure season of the year, meetings of parents, teachers, and others, should be held, from week to week, for the discussion of questions appertaining to family discipline, to the relation of the home to the school, and to education generally; that some simple organization should be adopted to secure regularity and efficiency in these meetings; and that the discussion should be chiefly conversational in its character, with occasional lectures, and the reading of written communications."

We copy the following notice of Rev. Mr. Burton's labors in Newburyport from the *Newburyport Herald*.

"We alluded, a few days ago, to the efforts of Rev. Mr. Burton to awaken a stronger interest, on the part of parents, in the home education of their children. For some years past, his heart and strength have been given to this subject, in other places, with the happiest results. He lectured last Sabbath evening, in the Pleasant street church, before an attentive audience, upon the words, "be thou prepared," in which he endeavored to show the importance of a more careful preparation by those who are to assume the responsibility of training the young. His lecture was earnest, truthful, impressive. He spoke of the young child in the cradle. Its capacities are unformed; it may become an obedient son, a well-behaved pupil, an honorable boy, a high-minded man, a useful citizen, or the opposite. Whose skillful hands will dare undertake such a fearful duty, on the right performance of which so much depends? He who would learn a trade, devotes himself for years to the work; she who would touch the keys of the piano with skill, devotes many long and weary months to practice; but, who studies, who inquires, who devotes a thought to this all-important subject? If the child becomes a dishonor to the parents, they lament their misfortune, and sigh that theirs should have been so hard a lot; but, never think of their own guilty neglect, of what they might have done, and ought to have done, to develop the good, and restrain the evil, in that child. Should not the community awake upon this subject,—all to whom the education of the young is in trust,—parents, teachers, clergymen, in fact, everybody? Should not all see the importance of more interest in this matter, that home influence, and *street* influence, and *school* influence, may all be what they should in the education of children? This is one great object of Mr. Burton, to awaken a stronger feeling, especially in *home education*, for that is at the foundation of all other education, and if that is what it should be, we have little fears for the rest. Parents, who train up a family of good sons and daughters for society, have left a treasure behind them to exert an influence for good, long after their forms have mouldered into dust. We knew, not long since, a family meeting, when an aged mother called around her eight adult children, all influential, esteemed, and useful, and not a stain resting upon the character of one. These were *her jewels*, of which she had reasons to be proud, and for which the world blessed her, for it was to the judicious, firm, yet kind training of the parents that these children had become what they were. How much might be done, were a proper interest awakened in this matter! And, this is Mr. Burton's object,

to get parents together, that they may talk over the subject, and better inform themselves, and better prepare to discharge the duty of educators. Let a meeting be held, and subjects proposed like the following, suggested by him. "How much should parents depend upon school teachers to correct the bad dispositions of their children?" "How shall truthfulness and integrity of character best be inculcated and established?" "What is the effect of much of the light reading of the present day upon children, and what is to be done with reference thereto?" and many others? Let all speak, and tell their thoughts and experience; let the ladies hand in essays, and thus express their views, and we believe untold good would result.

A meeting was held in the Whitefield vestry, Monday evening, when Mr. Burton further explained his views. Brief remarks were also made by others, and a committee was appointed, consisting of the following gentlemen: Rev. Messrs. Vermilye, Horton, and Spalding, Dea. Wm. Thurston, H. B. Fernald, Esq., Mr. Geo. W. Hale, and Dr. Grosvenor, to endeavor to carry out, at the proper time, some of the valuable thoughts suggested. We understand Mr. Burton proposes to go elsewhere in the country. We can only say, may he receive the cordial support and confidence of the community, for he is engaged in a noble work. *We must take care of the young.* Laxity of principle, unwillingness to bear restraints, disregard to the authority of elders, a wish prematurely to assume the airs of men, have taken the place of that strict parental watchfulness, which our fathers so carefully exercised, and to which New England owes so much. Young America, as at present training, is as little fit to manage the destinies of our country, as Phaeton the steeds of his father. May he be taught wisdom in time, for he will have a noble inheritance."



## VI. PRUSSIAN EXPENDITURES FOR PUBLIC INSTRUCTION

COMPARED WITH FRANCE.

[The following article is translated for this Journal by Miss E. S. GILMAN, of New York, from a work\* on the Schools of Northern Germany, by M. Eugene Rendu, who was sent out by the French Minister of Public Instruction to examine their condition, of which tour this volume is the result. We shall have occasion again to notice the representations of M. Rendu, as to religious instruction in the schools of Prussia.

The Ministry of Public Instruction, in Prussia, is charged with the direction, not only of Education, but of Worship and Medicine. It is officially denominated *Ministerium der Geistlichen, Unterrichts—und Medizinal Angelegenheiten*.

The budget of this department, in 1853, reached the sum of 3,878,313 *thalers*, or 2,714,819 dollars, which were thus distributed:

### Ordinary Expenses.

#### A. MINISTRY.

	Thalers.
Councillors,† of the central administration, salaries and personal expenses,	94,092
<i>Matériel</i> , Expenses of Administration, - - - - -	14,660
	108,752

#### B. WORSHIP.

##### EVANGELICAL WORSHIP.

Superior Ecclesiastical Council,‡ ( <i>Ober Kirchenrath</i> ), salaries and expenses of bureaux, - - - - -	18,000
Consistories, (salaries and expenses of bureaux,) - - - - -	101,570
Pastors and churches, (salaries and assistance,) - - - - -	283,583
	403,153

##### CATHOLIC WORSHIP.

Endowment of dioceses, and of the establishments pertaining to them,	351,056
Clergy and churches, (salaries and subsidies,) - - - - -	383,046
	734,102½

\* *De l'Education Populaire dans l'Allemagne du Nord.* See Paris, 1855.

† 1 Director, 4000 thals.; 1 Councillor, 3000 thals.; 11 Councillors, at from 2000 to 2,000 thals.; 2 Ecclesiastical Councillors, at 800 thals.; 3 Medical Councillors at from 1000 to 1,800 thals.

‡ 1 President, 4,500 thals.; 2 Members, at 2,400 thals.; 2 at 800 thals.; 1 at 400 thals.; 6 members without salary.

§ This inequality of revenues in favor of the Catholic Church is easily explained: the No. 6.—[Vol. II, No. 2.]—22

## C. PUBLIC INSTRUCTION, ARTS AND SCIENCES.

## OFFICERS OF THE PROVINCES.

	Thalers.
Provincial <i>Schul-collegium</i> ,* (salaries and expenses of bureaux,) - - - - -	48,840
Committees of examination,† ( <i>wissenschaftlichen Prüfungs Commissionen</i> ), - - - - -	6,592
	55,432

## UNIVERSITIES AND GYMNASIUMS.

Subsidies for the Universities and the Academy of Münster,‡	466,035
Scholarships of the State, - - - - -	10,444
Subsidies for Gymnasiums and the <i>Real Schools</i> ,§ - - - - -	292,458

## PRIMARY INSTRUCTION.

Normal Schools, ( <i>Schullehrer Seminarien</i> ), - - - - -	118,955
Elementary Schools, - - - - -	187,267
Establishments for the blind and for the deaf and dumb, - - - - -	13,418
Orphan Asylums and other benevolent establishments, - - - - -	75,198
	394,838

## ARTS AND SCIENCES.

Academy of arts, at Berlin, - - - - -	32,867
Academies of arts at Königsberg and Düsseldorf, - - - - -	12,160
Museum at Berlin, - - - - -	49,300
Academy of sciences at Berlin, - - - - -	20,743
Royal Library, - - - - -	24,180
Various expenses for art and science, - - - - -	46,282
	185,532

"endowment" of the State is a debt contracted by it after the secularizations effected at different periods, and for the last time in 1810, when the war for independence took place. The payment of this endowment was regulated in 1821, by the Royal Order of the 26th of August, and the *Bull de salute animarum*, of the 16th of July.

This endowment, although consecrated by these solemn acts, is nevertheless, annually the object of bitter polemics on the part of the Protestant Journals. The number of Protestants in Prussia, compared with that of the Catholics, is in the proportion of 18 to 11.

\* Each of the ten provinces of Prussia is under the administration in regard to worship, public instruction, and medical affairs, of a provincial consistory, which like the ministry itself, is divided into three sections. To one of these sections, the *schul-collegium*, here alluded to, are referred questions in regard to secondary instruction and the administration of the normal primary schools. The *schul-collegium* inspects the gymnasiums and the *real schools*, makes out the regulations, &c.

† These committees, composed of professors in the university of the province, examine the pupils leaving the gymnasium, previous to admitting them to the university. (*Abiturienten-examen*.) They have also to preside over the examination required of the future professors of gymnasiums.

‡ The Academy of Münster is an incomplete university. Neither Law nor Medicine is there taught. The bishop of the diocese, Mgr. Müller, has proposed to the king to reorganize this Academy upon a liberal basis, and to make it the University of the Catholic provinces of Prussia.

§ The *Real-Schools*, are that class of establishments which are adapted to the vocation of young persons not intended for classical pursuits, but whose scientific studies ought not to be limited to primary instruction. They constitute the intermediate superior instruction. Almost every city in Germany has its *real school*, or at least its *Bürger school*.

**D. EXPENSES COMMON TO WORSHIP AND INSTRUCTION.**

	Thalers.
For the clergy and school, counsellors, ( <i>schulrätbe</i> ), in the Departments,*	52,950
Expenses for buildings, resulting from the right of patronage,	194,762
Additions to the salary of some ecclesiastics and some teachers,	179,45
Sundry expenses,	55,967
	483,134

**E. MEDICINE**

303,168

**F. UNFORSEEN EXPENSES.**

	19,965
Total of ordinary expenses,	3,457,113
Total of Extraordinary Expenses,	421,200
Sum total,	3,878,313

If we deduct the expenses of public worship, there remains the sum of 10,368,961 francs, (about 2,073,792 dollars,) devoted to public instruction in Prussia, in a population of 15,000,000, while in France, with a population of 35,000,000, the budget of public instruction, reaches the sum of 22,333,323 francs.

Let us examine the chapters in detail :

**I. SUPERIOR INSTRUCTION.**

There are, in Prussia, seven universities : Berlin, Bonn, Breslau, Halle, Königsberg, Greifswald, and Münster. Each of these universities, except the Academy of Münster, is the union of several different faculties. Under the name of the Faculty of Philosophy are comprised various subjects, which in France, with good reason, are assigned to the two Faculties of Sciences and of Letters. The word Philosophy, in this respect, is about as comprehensive now, in Germany, as it was in Greece at the time of Socrates or of Anaxagoras. Thus for example, in the university of Berlin, under the common title of professors of philosophy, are classed together M. G. Grimm and M. Dirichlet, M. Michelet et M. L. Ranke, M. Lepsius et M. Raumer, etc.

The entire expense of the seven universities of Prussia amounts to 559,623 thalers, (2,233,586 francs,) of which, as I have before stated, 466,035 thalers, (or 1,747,631 francs,) are paid by the State.

In France, the entire sum stated in the budget, for the eight faculties of theology, nine faculties of law, three faculties of medicine, eleven faculties of sciences, thirteen faculties of letters,† and three schools of pharmacy, does not exceed 2,786,636 francs.

\* Each province is divided into departments, (*regierungsbezirke*), each of which has its council. This Board, corresponding to the council of prefecture in France, is composed of a certain number of counsellors, (*regierungsräthe*), among whom one special councillor is charged with all that relates to primary instruction throughout the department. The *Schulrath* reports to the council all matters relative to primary instruction. He corresponds in the name of the council, with the *schul-collegium* and the ministry of public instruction, in regard to normal schools.

† Since the above was written, the minister of public instruction has endowed, in France, five new faculties of sciences and three faculties of letters. The total expenses of the faculties, in the budget of 1866, is stated as 3,361,741 francs.

	France.
Faculties of theology, . . . . .	149,000
law, . . . . .	770,700
medicine, . . . . .	694,440
sciences, . . . . .	468,700
letters, . . . . .	470,698
Superior schools of pharmacy, . . . . .	162,000
Expenses common to all the faculties, . . . . .	71,100
	2,786,636

The receipts and expenditures of the Prussian Universities are estimated as follows:

## RECEIPTS.

Universities.	State Appropria- tions.	Founda- tions.	Real Estate, Franchises, &c.	Earnings.	Total.
	Thalers.	Thalers.	Th. s. p.	Thalers.	Thalers.
Berlin,	151,462	50	250,14.5	5,698	157,210
Bonn,	101,050	277	2,453.	2,186	105,780
Breslau,	80,318		9,566.	1,129	90,890
Halle,	53,645	27,792	252,22.6	3,594	85,165
Koenigsberg,	71,310	40	7,099.	832	79,200
Greifswald,	1,200	57	60,377.	470	62,100
Münster,	1,250	12,578		1,450	15,278
Plus	460,235 5,800	40,794	79,995.011	15,359	595,623
	466,035	136,148 thalers, 11 silb.			

## EXPENDITURES.

Universities.	Expenses of the ac- ademic admi- nistration	Salaries of Professors.	Institutes, Museums, expense of worship in the univer- sity.	Prizes, Scholar- ships, &c.	Expendi- tures for material.	Divers supple- mentary expendi- tures.	Total.
Berlin,	9,747	80,800	55,330	350	2,000	8,983	157,210
Bonn,	7,540	59,700	27,116	3,300	4,589	3,535	105,780
Breslau,	7,354	44,049	24,901	4,060	3,500	7,026	90,890
Halle,	6,870	40,076	21,651	7,926	3,460	5,182	85,165
Koenigsberg,	5,634	32,585	24,881	7,565	3,651	4,884	79,200
Greifswald,	4,030	30,755	17,735	3,676		3,900	62,100
Münster,	310	9,750	4,106	500		612	15,278
	43,489	297,715	175,720	27,377	17,200	34,122	595,623

It is well known that in all the universities of Germany, there are three classes of professors: the ordinary, or titular professors, (*ordentliche*); the extraordinary professors, (*ausserordentliche*), nearly resembling the adjunct professors of French faculties; the *privat-docenten*, whose position is similar to that of the *agrégés de médecine*, in France. The ordinary and extraordinary professors alone receive a salary from the State, and of course, the salaries of the former considerably exceed those of the latter.

In the university of Berlin, which numbers fifty-two ordinary professors and forty-two extraordinary professors, the rate for salaries of the former, (the salaries varying according to the nature of the instruction,) is as follows: 1,500 tha-

lers for the theological professors; 1,460 thalers for the professors of law; 1,180 for the professors of medicine; 1,500 for the professors of philosophy. The salary of the extraordinary professors is from 380 to 520 thalers.

These fixed salaries, it is well understood, do not constitute the sole revenue of the professors in the German universities. These salaries answer to the gratuitous instruction, (*legere publice*), which the professors are obliged to give. But besides these lessons, which are less numerous and less important, the professors give courses (*lesen ein Collegium*) upon subjects chosen by themselves. These courses are called private lessons,\* (*legere privatim*.)

Such an organization seems to operate, in Germany, greatly to the advantage of science, of the professors, and of the pupils. The financial position of the professors may thus be very advantageous, without the State's exceeding, in any way, the limits of credit allowed for the fixed salary—credit which, as we have said, amounts to 297,715 thalers.

## II. SECONDARY INSTRUCTION.

Prussia contains 140 public establishments for secondary instruction, among which are 110 gymnasia; that is to say, 110 institutions where the programme of studies is completely developed.†

Berlin has 6 gymnasia for 570,000 inhabitants; Breslau, 4 for 90,000; Magdeburg, 2 for 50,000; Halle, 2 for 27,000, &c. Neither Paris, which with this proportion ought to have twenty colleges, nor cities like Lyons, Marseilles, and Bordeaux, can sustain a comparison, in regard to the number of their Lyceums with Berlin and the principal cities of Prussia. It is true that the sum of pupils in the French establishments is much greater than in the gymnasia spoken of; thus, while the 10 gymnasia of the department of Potsdam, comprising those of Berlin, do not contain more than 3,000 pupils, the five lyceums, and the two colleges of Paris have more than 5,000 students; but it would not be difficult to demonstrate that this very distribution of pupils, according to the German system, is in every respect greatly preferable to the accumulation which imposes, even upon Paris, a too limited number of lyceums.

While the Bonaparte lyceum is obliged to receive 1,124 pupils, that of Louis le Grand 880, Charlemagne 877, etc., only one gymnasium at Berlin, the *Friedrich Wilhelms Gymnasium*, numbers more than 500 pupils; the French gymnasium, in that city, does not admit more than 270. It is not, however, by the number of pupils, but by the character of the studies, that an institution of

\* For example, the programme of 1802, thus announced the course of the celebrated philologist Bopp:

F. Bopp, doctor.

I. *Publice selectos Rig-Vedac hymnos interpretabitur d. est. h. III—IV.*

II. *Privatim.* 1. *Grammaticam comparativam linguarum græcæ, latine et germanicæ d. Lun. Mart. Jov. h. III—IV tradet.*—2. *Grammaticam sanscritam, duce libro suo minore (ed. 2, 1845.) docebit, d. Lun. Mart. Jov. h. II—III.*

Now, these private lessons are paid for by each student, at a tax of about 20 francs for a half year. And since the professor reads to two or three colleges or classes, as it often happens, with 100 or 150 pupils in each, the supplement to the salary is triple or quadruple the principal.

† The Gymnasium, of Germany, and the Lyceum, of France, correspond to the Public Grammar Schools of England, and in the classical course are nearly equal to the Colleges of this country. There are not a half dozen academies or high schools in this country which can stand a comparison with any one out of ninety which might be named of the 110 Gymnasia of Germany, in the extent and thoroughness of its classical course.

public instruction is to be judged. It is far from my intention to intimate that the best students in our lycées, in each class are inferior to the first scholars in the German gymnasiums. I believe just the contrary; but what it would be easy to show is, that in general, in the secondary institutions of Germany, owing to a smaller number of pupils, instruction is more generally and more equally distributed than in the French institutions.\*

We must divide into two classes the 140 public institutions which have been mentioned; one class, 100 in number, participate in the grants of the State; the others, quite as important, are either entirely communal, (*städtische anstalten*), or else are supported by private revenues and special endowments, like the gymnasium of Zeitz, in the province of Saxony, or the cloister of Magdeburg, which has a revenue of 34,800 thalers, (130,500 francs.)

Distributed among the 100 institutions in question, the grants of the State amount, as we have said, to 292,458 thalers. In France, the subsidies of the government, allotted to secondary instruction, subsidies granted to 57 lycées, and in a very small proportion, to 66 communal colleges, amount to 2,314,307 francs.†

According to the statistical estimates, one million inhabitants include 93,454 male children, from the ages of 8 to 18. The population of Prussia being given, we must suppose that in that country are 1,401,810 boys between those ages. Admitting the supposition for a moment, that all the young people share equally in the secondary instruction, the State, in Prussia, would contribute toward the expenses of this instruction, for each one, a little more than 78 centimes. In France, with the same hypothesis and according to the same calculation, the share contributed by the State, the sum of the expenditures being given, would be only a little less than 69 centimes.

The sum of the grants accorded to secondary instruction, by the French government, is as much less in proportion to the corresponding total of the Prussian budget, as the first ought, in good logic, to be greater in proportion than the second. In fact, the institutions of public instruction in Germany possess peculiar resources, incomparably more extensive than those of our colleges and of our lycées.

The sum total of the special revenues of the French lycées is 315,578 francs, while that of the corresponding revenues of the Prussian gymnasiums is 415,906 thalers, or 1,559,847 francs.

The difference is still more striking when we compare the sums total of the general receipts of the two.

Total receipts, (French Lycées,) - - - 8,882,082 fr. 93 c.

" " (Prussian Gymnasiums,) 1,008,335 thalers, 4,081,257 francs.‡

Only two lycées in France have important revenues; Louis le Grand, which has 63,943 francs, and Napoleon, which has 93,099 francs. Next to these two lycées come, in the order of their revenues, those of Rouen, Strasbourg, Lyon, Metz, Nantes, Douai, Rodez, Tournon, and Laval. The revenues of the other lycées are more or less insignificant.

\* In the Gymnasiums, one instructor is generally provided for every 20 pupils.

† Lycées, 1,535,831 fr. 87 c. Scholarships and reduction of taxes, 579,344 fr. 40 c. Assistance to communal colleges, 99,231 fr. 06 c.

‡ This disproportion is easily explained; boarding schools being almost unknown in Germany. The proceeds from boarding schools alone, in the receipts of the French lycées, amount to 4,346,224 fr. 97 c.



On the contrary, look at the Prussian establishments. Passing by the six gymnasia of Berlin, whose total revenue is 51,953 thalers, let us consider the gymnasia of the provinces.

		Revenue.	
Gymnasium at Pforta,*	- - -	41,116 thalers,	134,185 francs.
" Liegnitz,	- - -	25,193 "	94,472 "
Latin school at Halle,	- - -	5,291 "	19,832 "
Gymnasium at Münster,	- - -	8,172 "	30,445 "
" Duisburg,	- - -	5,621 "	" "
" Coesfeld,	- - -	4,995 "	18,761 "
" Bonn,	- - -	7,170 "	26,887 "
" Oppeln,	- - -	5,376 "	5,376 "
" Gleiwitz,	- - -	5,719 "	5,719 "
Etc., etc.			

The financial situation of the gymnasia is, therefore, generally very good. The advantage which the 110 Prussian gymnasia possess over the 57, (now 66,) lycées of France, in regard to their special revenues, is very great.† The average of these revenues, for the latter, is 5,536 fr. 40 c.,—for the former it is 12,579 fr. 65 c.

The Prussian gymnasium admitting, almost without exception, only day scholars, their general expenses are not very complicated. We may divide these expenses into two divisions: salaries of professors—and matériel and expenses of administration. The sum total of the salaries is 719,479 thalers. The expenditures of this nature, in the gymnasia of Berlin, are thus fixed:

Verder gymnasium,	- - - - -	15,624 thalers.
Cologne "	- - - - -	12,212 "
Frederic William "	- - - - -	35,925 "
French "	- - - - -	8,700 "
Joachimsthal "	- - - - -	17,289 "
Berlin "	- - - - -	15,878 "

The salaries of the directors of these six gymnasia are from 1,500 to 2,500 thalers.

In the provinces, the salaries of officers, even of the same rank, varies from 600 thalers, (as at Münsterfeld,) to 1,500 thalers, (as at Königsberg.)

The salaries of the professors are in proportion to those of which we have just spoken. In Berlin, these salaries vary from 1,400 to 1,600 thalers. In the provinces they are as small, even for the higher professors, as 900, 700, 500, and 400, thalers.

The expenditures of the second class, (expenses of administration,) are not

#### † Boarding School.

† The annual income of the Endowments for Classical or Grammar Schools in England, in 1851, as estimated by the Charity Commissioners, was £152,047. According to a writer in the North British Review, (Feb., 1856,) there were 118 Grammar Schools which severally enjoy an annual income, independently of fees from pupils, of more than £300, (£1,500.) About 67 of these are returned at £200; 33, at or above £1000, and at least 15 at or above £3000. The following are given as specimens of the latter class:

Bedford Grammar School has an annual income of	£3,000
Shrewsbury,	3,100
Manchester,	4,400
Birmingham,	10,000
Winchester,	14,000
St. Paul, (London,)	5,200
Eaton, (Windsor,)	7,000

very great in the German gymnasia. In the first place, the system of boarding schools is almost unknown. Moreover, even in the establishments where boarders are admitted, the administration is very simple; the office of a censor does not exist; the director governs the gymnasium, having under his direction a person having charge of the matériel, &c., whose duties correspond to those of the steward in our lycées: but though having the general government, he is still a professor and has classes like his colleagues, though not quite so many. The expenses of administration do not exceed 954 thalers at Zulichan, and 1,042 thalers at Putbus.

### III. PRIMARY INSTRUCTION.

The sum devoted by the State of Prussia, (out of a total expenditure of 14,800,000 francs,) to primary instruction, is, as we have said, 594,838 thalers, or 1,489,942 francs, besides about 200,000 thalers, 750,000 francs, employed for additions to salaries and the expense of buildings, resulting from the right of patronage, the population being 15,000,000. The sum in the French budget thus employed for 35,000,000 inhabitants is 4,970,000 francs, besides 748,000 francs devoted to the expenses of inspection; thus, in Prussia, the State, to each million of inhabitants, devotes 149,996 francs to primary instruction, while France devotes to it 158,833 francs.

It should be added here that by virtue of a principle, the application of which would be difficult in France, the State, in Prussia, only by favor, (*aus gnade*,) interposes in the expenses of primary instruction. Thus, as in England, a great number of schools are supported by special funds, arising from endowments. Others are supported by subsidies paid by the communes, the school societies in the country, (*Landeschulvereine*), or the departments, (*Regierungs Bezirke*.)

A school society is composed of all the landed proprietors, without distinction, and the fathers of families in the circumscription of the commune, or, in certain cases, of several communes. The ordinary communal resources, united with the academic remuneration or with the revenues of deeds of gift, not being sufficient to defray the expenses of founding or of reconstructing schools, the necessary expenditures are met by a special tax, of which the quota is essentially variable, charged to the fathers of families, (*Hauseater*.)

This last word here presents a meaning analogous to that which the Roman law gave to it. It includes every inhabitant of the commune *sui juris*. Except the clergy, school teachers, soldiers, and hired persons, no one is freed from the contribution, whether he has children at school or not. It is a matter of general interest to which neither the law nor custom allows any to remain a stranger.

The contribution is ordered by the council, and the assessments are regulated by the communal authorities, in concert with the representatives of the school societies.

This contribution is proportioned to the revenue derived from lands, industry, and property of all kinds. It is, in truth, an income tax, a kind of impost which is well known to be nothing new for the legislation nor formidable for the customs of Germany.

The tax has one remarkable feature; that it rests upon lands as a real charge. Should the property to which it is attached be divided, each part remains encumbered with its quota of the contribution. And it is thus that the care of the moral and intellectual interests of the people is promoted, beyond the Rhine, to the highest rank of public duties.

It is only in case of these various resources proving insufficient that an appeal can be made to the aid of the department or the liberality of the State.

We can now give an account of the disproportion in the expenses charged to the State, for services of the same nature, in the French and the Prussian budgets.

FRENCH BUDGET.

Grants to the communes for the ordinary expenses of their communal schools,	3,560,000 francs.
Also, grants for the construction, repairs and locations of school-houses,	900,000 francs.
	<hr/> 4,460,000

PRUSSIAN BUDGET.

For the corresponding expenses, 1,418,760

It is also necessary to understand that in this sum of 1,418,760 francs are included expenditures, the greater part of which, in France, are charged to the Ministry of the Interior; i. e.,

Establishments for blind youths and for the deaf mutes,	15,418 thalers.
" for orphans and for benevolence,	75,198 "

For expenses specially applicable to primary schools, properly so called, (aid toward school-houses and toward the salary of teachers,) we can only state the sum as 187,267 thalers.

It is not altogether useless to notice the division of this sum among the 26 *circles or departments*. This corresponds to that mentioned in the French budget as "Grants to the communes for the ordinary expenses of public schools," a sum amounting to 5,179,966 francs; and as a German *circle of councils*, (*Regierungsbezirk*), corresponds to a French department, a comparison between them may be interesting.

PRUSSIAN DEPARTMENTS.

	Thalers.		Thalers.		Thalers.
Koenigsberg....	15,991	Breslau .....	4,764	Münster.....	13,676
Gumbinen .....	4,516	Liegnitz.....	1,425	Minden .....	8,135
Dantzig.....	8,942	Oppern.....	3,667	Avusbirg.....	4,231
Marienwerder..	12,935	Berlin.....	2,658	Coblentz.....	2,682
Posen .....	27,638	Potsdam.....	17,586	Düsseldorf....	7,194
Bromberg.....	4,514	Frankfort....	12,000	Cologne.....	1,599
Stettin.....	4,284	Magdeburg....	8,102	Trèves.....	2,755
Coslin.....	2,845	Meyebourg....	3,730	Aix-la Chapelle.	1,527
Stralsund.....	294	Erfurt.....	2,638		

FRENCH DEPARTMENTS.

	Francs.		Francs.		Francs.
Ain.....	77,746	Aude.....	79,183	Creuse.....	65,718
Aisne.....	96,609	Aveyron.....	165,792	Dordogne....	52,560
Allies.....	15,552	Cantal.....	41,606	Doubs.....	21,583
Alpes (Basses)	125,315	Charente.....	39,543	Drôme.....	78,014
Alpes (Hautes)	93,896	" Inférieure..	8,327	Gard.....	8,000
Ardèche.....	69,961	Cher.....	7,195	Garronne (Haute)	70,136
Ardennes.....	31,863	Corrèze.....	93,478	Gers.....	98,981
Ariège.....	91,515	Corse.....	139,711	Lozère.....	101,598
Aube.....	37,997	Côtes du Nord.	6,902	Etc.	

The average of the grants for each department, (*Regierungs Bezirk*), is 27,009 francs; for each French department it is 56,976 francs. Still, it must not be forgotten that in the sum of 3,179,966 francs, corresponding to the 702,251 francs, 25 c. of the Prussian budget, are only comprised the grants for the ordi-

nary expenses of the public schools; besides this sum, the extraordinary and special expenses defrayed by the State, amount to 1,855,715 francs, 29 c.

The average salary of instructors teaching in the towns, in Prussia, is about 800 francs; that of a village master does not exceed 350 francs.

Such a salary is quite out of proportion to the expenses which a teacher, who has a family, must incur. This insufficiency has given rise to a custom which assuredly is not quoted as an example to be followed, but as an indication of the zeal of the rural population of Germany, in supplying the wants of the humble teachers to whom are committed the interests of education. In many villages the instructor possesses what is termed the *right of the table*; he dines from house to house, and his place is, in turn, at the tables of all the *fathers of families*, (*Hausvater*;) in the commune.\*

There are, moreover, in the hamlets of some departments, especially those of Oppeln and of Coblenz, families, who rather than dispense with an instructor for whom they are not even able to build a school-house, furnish him, each in turn, with lodging and fire: the instructor becomes, successively, the nocturnal guest of all the inhabitants.

In spite of these expedients, we can understand how the lot of village instructors has been the subject of many complaints. In a neighboring country to Prussia, in Saxony, the law, in imitation of the French law, has fixed the minimum for the salary of school-teachers at 450 francs. And, at this very time, the superior administration in Prussia, is engaged in considering the means of placing the compensation of teachers more on a level with their true social position.

If, however, the principle of a minimum of salary seems needful to be adopted by the Prussian administration, it is not desirable to abolish the custom according to which young teachers, acting, at first, in virtue of a simply provisory title, only receive a normal and complete salary after a final nomination.

Only those candidates who, at the time of their examination, have received a certificate of capacity, (*Wahlfähigkeit-Zeugnis*;) of the highest order, can be nominated, with a definite title, at their entrance into the career of instructors.

The others must practice, at least two years, in a public or private school, by virtue of a provisory permission. These two years are a time of probation, at the end of which the testimony of the academic authorities, as to aptitude, moral disposition, and capacity, can alone insure to the candidate, a definite appointment. Till such a time the teacher has no right to the entire salary belonging to the post occupied by him.

While the greater part of the expenses relative to primary schools, in Prussia, is defrayed by the communes, on the contrary, the State assumes almost the entire expenses of the normal schools.

There are in Prussia, 48 normal schools, for the support of which the State, every year, makes a grant of 118,955 thalers, (446,081 francs.) The corresponding sum in the French budget does not amount to 200,000 francs. The special incomes and revenues of the Prussian establishments are, in all, 58,102 thalers or 217,282 francs. Those of the French schools amount to 401,988 francs. The average of expenses in the former is 3,667 thalers, 13,741 francs.

\* This practice resembles that which still prevails in certain French departments, especially in that of Haute Loire, where the poor school-mistresses belonging, under the name of *Béates*, to a kind of order, do not receive any compensation from the municipalities. These devoted women carry to the utmost degree, the spirit of abnegation which is produced and sustained by religious thoughts: they seek from door to door what is necessary for their

It may not be useless to present a statement of the receipts and expenditures of some of the normal schools, showing the part contributed by the State.

Normal Schools.	Total Expenditures.	Salaries of Teachers.	Grants from the State.
	Thalers.	Thalers.	Thalers.
Normal school of Braunsberg,	4,470	1,505	4,166
Eylau,	4,573	2,120	4,009
Angerburg,	4,260	2,100	4,223
Kamlane,	5,838	2,542	5,817
(Preparatory school at) Margrabowa,	100		100
Marienburg,	4,215	2,629	4,215
Grandenz,	5,058	2,410	1,500
Breslau,	4,915	2,470	1,526
Steinau,	4,442	2,470	4,309
Benzlau,	4,050	2,275	
Berlin,	8,386	5,955	3,800
Copnick,	9,604	4,555	5,630
Münster,	2,846	1,820	1,080
Meurs,	4,170	2,200	3,670
Kempen,	6,480	2,670	6,480
Etc., etc.	6,680	2,960	6,600

The expenses of the inspection of primary schools amount, in France, to about 750,000 francs; in Prussia they do not exceed 70,000 francs. The reason of this difference is very simple: beyond the Rhine, the inspectors do not constitute a corps of special officers; they are all taken from among the clergy, and invested with a scholastic mission, which is considered as the natural consequence of their duties; they receive no salary but merely an indemnity for moving about, which for each one, is not more than 200 or 250 francs.

One inspector has the school direction of a circle, (*kreis*.) This circle includes from 25 to 40 schools; charged with such a small number of institutions, the *kreis schul inspector* visits them often. People in Germany can not understand how 300 and 400 schools can be given in charge to one man alone.

In order that the application of such a system may be practicable, one condition *sine quâ non* is, that the clergy should furnish a considerable number of men capable of showing in the school, and under the eyes of the instructor, that they are acquainted with school matters. To this end it is required of the theological candidates in Germany, that they should pursue, at the same time with their other studies, a special course of pedagogy. Moreover, the protestant candidates are obliged, before undergoing an examination *pro Ministerio*, to pass six weeks in a normal school. In regard to the Catholic clergy, the government could not lay down this injunction, but it has been carried by the voice of the council; and at the present time, in the dioceses of Cologne, Münster, Breslau, Fulda, (in Hesse,) those young ecclesiastics whom a special calling seems to point out as designed, in future, for the functions of *kreisschulinspector*, also follow, for two months, the courses of the normal schools, for which an excellent moral superintendence has gained the confidence of all the bishops.

Thus, the expenditures of the State, for primary instruction are, in Prussia, rather less, in proportion, than in France.

THE foregoing comparative view of the expenditures of the Prussian and French Governments on account of public instruction is incomplete, because in both countries there are large sums appropriated for educational purposes introduced in the budget of the Department, or Minister of War, of the Interior, of Commerce, &c. And in neither case do we get at the actual cost of public schools of different grades, because we do not know the amount realized from endowments, from municipal taxation, or from fees paid by parents.

We give below the appropriations, by the British Government for Education, Science and Art, for 1856.

1. Public Education, (Primary Schools,) Great Britain,	£451,213
Science and Art Department,	64,675
2. Public Education, Ireland,	227,641
3. Commissioners of Education, Ireland, (extra office expenses,)	605
4. University of London,	3,879
5. University of Scotland,	7,570
6. Queen's University in Ireland,	2,415
7. Queen's College, Ireland,	4,800
8. Royal Irish Academy,	533
9. Royal Hibernian Academy,	300
10. Belfast Theological Professors, &c.,	2,975
11. British Museum,	85,643
12. National Gallery,	17,639
13. Scientific Workshops and Experiments,	4,609
14. Royal Geographical Society,	500
15. Royal Society,	2,000

From the above table, it appears that the appropriations of the British government for Primary Schools [including elementary instruction in Drawing, and the Department of Science and Art,] exceeds 18,000,000 francs, and in proportion to the population is larger than that of France or Prussia.



## VII. SCIENCE AND SCIENTIFIC SCHOOLS.

BY JAMES D. DANA.

Silliman Professor of Natural History in Yale College.

An address before the Alumni of Yale College, at the Commencement Anniversary, August 1856.

THESE annual pilgrimages over the breadth of the land to the groves of our Alma Mater have deep meaning. No duties of penance, nor hopes of ghostly reward, turn hither our steps. Thoughts of the past possess the soul, rather than care for the future: the familiar faces, the old red buildings, the sheltering trees, and the scenes of mirth, of friendship, or of serious effort, here enacted. Still more stirring is the consciousness with each of us, that amid these groves the mind first rose into manhood, and collected strength for the conflicts of life:—the mind's birth-place,—should not the spot be honored?

Besides these reflections, there is the pride, the just pride, that the nation has within these halls one of its best and most abundant sources of wisdom and virtue;—wisdom that takes hold on heavenly things while striking deep into the things of earth; virtue, that has its sure foundation in universal right and universal freedom.

It is natural on meeting friends, long absent, to seek out the marks of progress, to recount together the joys and trials along the way of life,—the new fields the affections have explored, the new conquests in the career of study or duty, or, perchance, the ineffectual labors and blighted hopes that have demanded still higher conquests. It is natural to ask, whether this or that one has fulfilled the promises of youth; whether he has become wiser with his years, and has expanded in spirit as well as intellect with every new movement of mankind; or, whether the dead languages still lie dead in his soul, himself a thing of the past rather than of the living world. With the varied responses to these and other thoughts, we find some occasion for sadness; much for delight and

gratulation; and, however it be, there is always happiness and invigorating influence from interchanged words and sympathies.

But with many, the inquiries will not stop here. How is it, they add, with our Alma Mater? Does the honored institution show signs of growth in these growing times? or is she linked with the past rather than the future, resisting progress as if it led only toward evil? All life in nature involves change; and there is no hope for humanity except in the same universal principle: but, with perverted view, is change here looked upon as only a step toward destruction?

Sounds have gone forth from these groves, which have told that Yale is awake to all that stirs the world around, declaring that she recognizes in man, yea, in all men, the divine image, and seeks to promote the full expression of that image as the highest exaltation of humanity.

Again, in her literary course, there is progress, as regards the range of studies, the character of examinations, the style of thought, and grade of scholarship.

There is another point of interest connected with the world's progress. The researches of the past one hundred years have opened new fields of thought, new revelations of profound truths direct from God's works, and the world, through the energies thus derived, is pressing onward with accelerating speed. Through the darkness, black as night, that seemed to be a bound to past time but 6,000 years off, geology has opened a vista in which she has traced the Divine Word, in glorious thoughts, all along the Ages. How does the College treat these new notions, and science generally? as modern inventions of Satan? Does she turn her back, and cry "*Procul!*" Does she adopt the half-stereotyped phrase, "The infidelity of modern science," and shed bitter tears because she can not help it? Does she regard the Arts as only so many ministers to luxury and debasement?

There still stands among us one whose eloquent words have for fifty years made the truth resound through these consecrated halls, and whose far-reaching tones have been reëchoed from every portion of the land. And thus Yale College has ever been in the van, never afraid of the progress of truth.

Yet there are many who still look with distrustful eyes on science: (under this term science you will understand me, here and elsewhere, as referring to the science of nature.) They seem to see a monster swelling up before them which they can not define,

and hope may yet fade away as a dissolving mist. They deprecate its influence upon our literary institutions, and the great interests of mankind. The word *nature*, though another expression for God's works, appears to them to smack of Atheism, and all education that touches on the useful, to be tainted with the mammon of unrighteousness. They overlook the fact that almost all works on science in our language, endeavor to uphold the sacred Word, those opposing it being exceedingly few; and that infidelity proceeds not from science, but from that one fatal and prolific source, man's depravity.

Notwithstanding all the protestations that may come from such unbelievers in God's revelations through nature and his plan for human progress, Yale College is ready to encourage science on a scale commensurate with its importance. For some years, the scheme has been recognized in her catalogue, under the title of "The Department of Philosophy and the Arts;" and now it is proposed to realize this scheme, at least in some of its branches. She would not, however, commit the folly of sacrificing herself in deference to philosophy and the arts. Yale will stand as she is, abating not her terms of admission, nor her grade of scholarship, and aiming still to give that thorough classical training, and that broad foundation of principles in the departments of nature, mind, and moral truth, which tend to the complete cultivation of the man. The system she has hitherto followed, though admitting of some improvement, affords in fact the true basis for the student that would ascend the highest paths, whether of literature or science. But she also recognizes that God has purposes of love in opening to man these other avenues of knowledge, and she would offer a place along side of the Academic Department for "Philosophy and the Arts," in their fullest display, where mutual benefits may be derived, and the ripening man find development, whatever his tastes or pursuits.

My object at this time will be mainly to give some account of the university feature in education which it is proposed to connect with the existing college system. But the claims of science are not so generally admitted or understood as to need no advocate; and I ask your attention first to some thoughts on this subject.

When man, at the word of his Maker, stood up to receive his birthright, God pronounced a benediction, and gave him this

commission: "REFLESH THE EARTH: SUBDUE IT: AND HAVE DOMINION OVER EVERY LIVING THING."

"SUBDUE AND HAVE DOMINION." These were the first recorded words that fell on the human ear; and Heaven's blessing was in them.

Man has long obeyed the mandate in bridling the brute races. But there is a deeper meaning which he has been slow to discover. In utterances, not to be mistaken, they declare to him:—"All the powers of nature, both animate and inanimate, are your heritage. The air, the waters, the earth, the light and the fierce lightning, as well as the productions of sea and land,—all are at your bid. Subdue; and they shall be your obedient aid, ministering to your necessities, your joys, and your highest progress." Even as the Being above us holds the universe in his hand, so man was to show forth the divine nature within him, by bringing under his ken and power, the world in which he was placed, and wielding its forces at his pleasure.

Such a Divine command was a lofty exhibition of the majesty of man. The earth, in its progressive preparation for him, had been receiving one perfection and adornment after another. The stars and earth had been bound together in system, and messages of light passed in mutual recognition of their one Author. The foundations of the earth had been laid in enactments inscribed on every crystal and grain of sand or drop of water. The kingdoms of life had appeared as still nobler expressions of his wisdom. And God, from the height of his glory, had pronounced all his work good. Thus the earth had been the place of Divine regard and favor: the Infinite Author had written it over with declarations of himself, and filled it with messages of his love.

But this volume of eternal wisdom remained yet a sealed book. What an unspeakable exaltation of Man, that to him were given the keys! the power to open, and read, and apprehend, although its words were in the hand-writing of the Infinite Author! to appreciate beauty which to Him was beauty! to decipher and understand the profound system of the universe! to venture on almost boundless excursions through space, and as profound searchings into the past! to appropriate the treasures of life, and turn the currents of nature's forces into his own channels! to rise from the dust of earth to the throne of power, and say to nature, "Go:"—and it goeth! Surely there was a declaration of man's dignity we can not yet apprehend in those words, "SUBDUE IT."

But what is this subduing of the earth? How is nature brought under subjection? Man's highest glory consists in obedience to the Eternal Will; and in this case, is he actually taking the reins into his own hands? Far from it. He is but yielding submission. He is learning that will, and placing himself, as Lord Bacon has said, in direct subserviency to divine laws. When he sets his sails, and drives over the waves before the blast, feeling the pride of power in that the gale has been broken into a willing steed, he still looks up reverently, and acknowledges that God in nature has been his teacher, and is his strength. When he strikes the rock, and out flows the brilliant metal, he admits that it is in obedience to a higher will than his own, and a reward of careful searching for truth, in complete subjection to that will. When he yokes together a plate of copper and zinc, and urges them to action by a cup of acid—and then despatches burdens of thought on errands of thousands of miles, man may indeed claim that he has nature at his bid, subdued, a willing messenger; and yet it is so, because man himself acts in perfect obedience to law. He may well feel exalted: but his exaltation proceeds from the fact that he has drawn from a higher source of strength than himself, and a mind not morally perverted, will give the glory where it is due.

These are the rewards of an humble and teachable spirit, kneeling at the shrine of nature: and if there is indeed that forgetfulness of self, and unalloyed love of truth which alone can ensure the highest success in research, this shrine will be viewed as only the portal to a holier temple, where God reigns in his purity and love.

The command, "subdue, and have dominion," is, then, both a mark of man's power, and of God's power. It requires man to study his Maker's works, that he may adapt himself to his laws, and use them to his advantage;—to become wise, that he may be strong;—to elevate and ennoble mind, that matter may take its true place of subjection. It involves not merely a study of nature in the ordinary sense of those words, but also a study of man himself, and the utmost exaltation of the moral and mental qualities; for man is a part of nature; and moreover, to understand the teachings of Infinite Wisdom, the largest expansion of intellect, and loftiest elevation of soul are requisite.

Leaving out of view the moral aspect of the question, let us look for a moment at the history of man's obedience to this injunction.

Solomon says, that in his day, "there was nothing new under the sun." What is, is what has been, and what shall be. The No. 6.—[VOL. II., No. 2.]—23.

sentiment was not prompted by any modern scientific spirit,—impatience of so little progress; for it was immediately connected with sighings for the good *old times*. Much the same spirit is often shown in these days, and elaborate addresses are sometimes written to prove that after all our boasted progress, Egypt and Greece were the actual sources of existing knowledge. They point to the massy stones of the pyramids; the sublime temples and palaces of the old empires; the occasional utensils of half-transparent glass, and implements of bronze or iron found among their buried ruins; the fine fabrics and costly Tyrian dye;—they descant upon the wonderful perfection attained in the fine arts, in poetry and rhetoric, and the profound thought of the ancient philosophers:—and then are almost ready to echo, “There is nothing new under the sun.” What is, is what has been. *Those good old times!*

But what had those old philosophers, or the whole ancient world done toward bringing nature under subjection, in obedience to the command, “subdue it?”

They had, it is true, built magnificent temples. But the taste of the architect, and that of the statuary or poet, is simply an emanation from the divine breath within man, and is cultivated by contemplation, and only surface contact with nature.

They piled up Cyclopean rocks into walls and pyramids. But the use of the lever and pulley comes also from the workings of mind, and but shallow views of the world. And adding man to man till thousands work together as in one harness, has been a common feat of despots from the time of the Pharaohs onward.

They educed profound systems of philosophy, showing a depth of thought since unsurpassed. But these again were the results of cogitating mind, acting in its own might,—glancing, it may be, at the landscape and the stars in admiration, but centering on man and mind; and often proving to be as erroneous as profound.

They cultivated the intellect, and made progress in political knowledge. But in their attempts to control nature, they brought to bear little beyond *mere physical force*.

Although ancient wisdom treats of air, earth, fire, and water, not one of these so-called elements was, in any proper sense, brought under subjection.

The *Air*:—Was it subdued, when the old Roman still preferred his banks of oars, and on the land, the wind was trained only to turn a windmill, carry off chaff, or work in a bellows?

Was the *Earth* subdued, when instead of being forced to pour



out in streams its wealth of various ores, but half a dozen metals were known? and instead of being explored and found to be marshalled for man's command, under sixty or more elements, each with its laws of combination and all bound to serve the arts, the wisest minds saw only a mass of earth, something to tread upon, and grow grain and grass?

Was *Fire* subdued, when almost its only uses were to warm, and cook, and to bake clay, and few of its other powers were known, besides those of destruction? or *Light*, when not even its component colors were recognized, and it served simply as a means of sight, in which man shared its use with brutes?

Was *Water* subdued, when it was left to run wild along the water-courses, and its ocean-waves were a terror to all the sailors of the age? when steam was only the ephemeral vapor of a boiling kettle, yet unknown in its might, and unharnessed? when the clouds sent their shafts where they willed? when the constituents of water,—the life-element *oxygen*, and the inflammable *hydrogen*, had not yet yielded themselves to man as his vassals?

Hardly the initial step had been taken, through the thousands of years of the earth's existence, to acquire that control of nature which mind should have, and God had ordered. The sciences of observation and experiment had not emerged from the mists of empiricism and superstition. There were few ascertained principles beyond those that flow from mathematical law, or from cogitations of mind after surface surveys of the world.

No wonder that nature unsubdued should have proved herself a tyrant. She is powerful. Vast might is embodied in her forces, that may well strike terror into the uninstructed: and man has shown his greatness in that he has at last dared to claim obedience. The air, earth, water, fire, had become filled with fancied fiends, which any priest or priestess could evoke; and even the harmless moon, or two approaching or receding planets, or the accidental flight of a thoughtless bird, caused fearful forebodings; and a long-tailed comet made the whole world to shake with terror.

Christianity, although radiant with hope, could not wholly break the spell. The Christian's trust, Heaven's best gift to man, makes the soul calm and strong mid dangers, real or unreal; yet it leaves the sources of terror in nature untouched, to be assailed by that power which comes from knowledge.

Man thus suffered for his disobedience. He was the slave,—nature, the feared master, to many even the evil demon himself.

Is this now true of nature? We know that to a large extent, nature is yet unsearched and unsubdued. Still, vast progress has been made toward gaining control of her ten thousand agencies.

In gathering this knowledge, we have not sought for it among the faded monuments and rolls of the *ancients*, as we call the inhabitants of the earth's childhood; but have looked to records of vaster antiquity—the writings of the infinite God in creation, which are now as fresh with beauty and wisdom as when His finger first mapped out the heavens; or traced the flowers and crystals of the earth. This is the fountain whence we have drawn: and what is the result?

How is it with *water* in these last times? Instead of wasting its powers in gambols down valleys, or in sluggish quiet about "sleepy hollows," it is trained to toil. With as much glee as it ever displayed running and leaping in its free channel, a single stream now turns over a million of spindles in this New England.

Changed to steam, there is terror in its strength even now. Yet the laws of steam, of its production, condensation, and elasticity, have been so carefully studied, and also the strength and other qualities of the metal used to confine it, as well as the nature and effects of fuel, that if we are careful not to defy established principles, steam is our most willing worker,—turning saw-mills, printing-presses, cotton-gins,—speeding over our roads with indefinite trains of carriages and freight,—bearing away floating mansions, against wind and tide, across the oceans,—cooking, heating, searching out dyes from coarse logwood, and the like,—and applying itself to useful purposes, one way or another, in almost all the arts. Again, if we will it, and follow nature's laws, water gives up its oxygen and hydrogen, and thus the chemist secures the means of burning even the diamond; the aeronaut makes wings for his adventurous flight, and the light-house derives the famous Drummond light for its work of mercy. And when he chooses, man may unite the oxygen and hydrogen again, and re-form the original water.

Light is no longer a mere colorless medium of sight. We may evoke from it any color we please, either for use or pleasure. We may also take its chemical rays from the rest, or its light rays, or its heat rays, and employ them separately or together; for we have found out where its strength lies in these particulars, so that, at will, light may pass from our manipulations, shorn of its heating power, or of its power of promoting growth or chemical change. Aye, the subtle agent will now use its pencil in taking sketches

from nature, or portraits, if we desire it:—and the work is well done.

The ancient wise men, discoursing on the power which holds matter together, sometimes attributed to the particles convenient hooks for clinging to one another. Little was it dreamed that the force of combination in matter,—now called attraction,—included the lightning among its effects, and would be made to run errands, and do hard work for man. Electricity, galvanism, magnetism, are modern names for some of the different moods under which this agent appears; and none of nature's powers now do better service. It is kept on constant run with messages over the continents, scaling mountains, or traversing seas, with equal facility. It does our gilding and silver-plating. Give it an engraved plate as a copy, and it will make a hundred such in a short time. If taken into employ, it will, in case of fire, set all the bells of a city ringing at once; or it will strike a common beat for all the clocks of a country; or be the astronomer's best and surest aid in observing phases in the heavens, or measuring longitude on the earth. All this and more it accomplishes for us, or can if we wish, besides opening to our inquiring eyes the profound philosophy which God has inscribed in his works.

Nature is no longer full of gloom and terror. Her fancied fiends have turned out friends. Although God still holds supreme control, and often makes man remember whence his strength, yet every agent, however mighty in itself, is becoming a gentle and ready assistant, both in our work and play,—in the material progress of nations, as well as their moral and intellectual advancement. Art is thence receiving daily contributions, and already realizes that no knowledge for service, compares with that which comes direct from nature.

It is apparent also, that only the most profound and scrutinizing research, with an earnest and docile spirit, can discover the unseen wealth of nature; for the great truths which have proved so fertile in results, have been sought out by those only who have given themselves, with all their might, to the deep study of God's laws in his works.

Thus it is that fact has been added to fact, until facts have become principles, and principles have expanded until they finally blossomed and spread their fragrance and fruit over the land, while the many receiving the blessing were ignorant whence it came.

A farther reference to the history of science will exhibit more

clearly the dependence of the arts on scientific progress; and I must ask your indulgence, if I refer to familiar facts for the sake of illustration.

Some knowledge of electricity, that is, the power evolved on rubbing glass, amber, resin, or sealing-wax, and other substances, was afloat in the ancient world. But until near fifty-six hundred years had passed, there was not an established principle even in prospect. A little more than a century since, the power was at last collected in quantities and imprisoned by means of the Leyden jar. Its shocks and sparks and other feats were among the wonders of science; but art had yet reaped nothing.

At this time, Franklin commenced experimenting on electricity; for the bruit of the Leyden jar had crossed the waters. He at once thought he saw miniature lightning in the sparks; and soon after, by means of his kite, as you well know, proved his induction right. After thus tapping the clouds for his experiments, he asked, Why not disarm the clouds, by planting perpetual conductors about our dwellings? It was done: and electricity shed its first fruits over the world.

Near forty years later, ten before the last century closed, a frog's leg freshly prepared for cooking, lying on a table in Galvani's house, on which was a charged electric battery, was observed to twitch convulsively when touched by a knife. Galvani took the hint, and after a series of experiments, thought he saw evidence of a new power in animal life, passing between the nerves and muscles. Volta soon disputed Galvani's theory of animal electricity, and set to work examining the conditions of the leg, its metallic connections and other circumstances. In pursuit of the simple truth, thinking that perhaps mere moisture might be an agent in the phenomenon, he placed a plate of silver on the back of a living frog, and another of zinc below, and on pressing gently, and bringing the plates into contact at one edge, the frog twitched all over, though no nerves were exposed. He next put the same metals together with only a moist piece of cloth or paper between, and, on connecting the two metals by a wire, observed at the moment of connection, an effect on an electrometer precisely like that caused by electricity. All that he required to produce the result, was a coin or disc of silver, (or copper,) a similar disk of zinc, and between the two, a disc of cloth, nearly as large, wet with salt water. He then added to the little triplet of silver, wet cloth and zinc, another triplet of silver, wet cloth and zinc, and another, and so on,

making a pile. With three or four such triplets in the pile, on touching one extremity of the series with a moistened finger of one hand, and the other extremity with a finger of the other hand, he felt a slight shock in his fingers, apparently of the same nature with that in the frog's leg: and as the pile increased in height, the shock increased; and moreover, he finally obtained a spark like that from the Leyden jar. It was light to the mind as well as eye. The movement of the frog was explained, while something very like electricity was evolved under extraordinary circumstances.

In this little pile—the voltaic pile, as it has been called—the first step was taken on a road leading deep into nature's arcana. Yet neither the world nor Volta then knew its future. Many, no doubt, were the contemptuous inquiries, "*cui bono?*" following a shrug at the shock felt at the finger-joints and elbows.

Others immediately after took up the line of investigation. The pile was changed into a trough containing a series of couplets of zinc and copper, alternating with narrow chambers filled with acid, in the order, zinc, moisture, copper, as used by Volta; and a brilliant series of developments commenced. The way had been prepared by the recent growth of the science of chemistry, which had made rapid progress since the discovery of oxygen, by Priestley, in 1774.

In experimenting with the battery, on bringing wires from the two ends into contact, intense heat as well as light was observed, melting or burning the wires:—*one new principle*, that this force will produce great heat.

Upon dipping the ends of these wires into a glass of water, bubbles of gas escaped from each, proved afterward to be the elements of water: hence, *another new principle*, that galvanism has the power of sundering the elements of a compound, or decomposing it. It was strange to most eyes, and nothing more; and to the question what is the use, there was little yet to show. Sir Humphrey Davy, pursuing this thought, obtained from potash, a metal afterward called *potassium*, that would float and burn on water; and from soda, another, *sodium*, almost as inflammable. But the quantities produced were very small, and there was nothing for the arts. It was observed, also, that on using in the battery the salt called sulphate of copper or blue vitriol, the metallic copper of the salt was abundantly deposited on the zinc, illustrating farther, this power in galvanism of decomposing compounds; but the fact was unproductive, except of inconvenience.

As years passed on and investigation continued, it was discovered that galvanism could make magnets out of any metal; that magnets could produce the effects of galvanism, give shocks and sparks, and decompose water; that electricity also could be made to decompose water, like galvanism. In fact, it became apparent that these three agencies were akin, and probably one in origin. But there was still heard the sneering "*en bono*," which saw no good in studying truth for its own sake, and had no measure of its value but the moneyed return.

It is the glory of the arrangements in the physical world, that beauty and utility mostly go together. The former is first and always reached, and is the boon to tempt the mind onward in research. By and by the practical comes forth in abundance, and then mind has its double reward. We have faith that the slow-growing tree, which for years is expanding in leafy beauty, will yet afford a rich return: at last the buds appear; then the flowers open out in their splendor; and finally, both beauty and utility oftentimes reach their climax together, in the ripened fruit, one heightening the effect of the other. Such should be our faith in the study of nature; for however dry the work of him who delves, nature has treasures in profusion to reward the laborer.

About forty-five years after the twitching of Galvani's frog, the time of blossom and fruit came; and such a succession of benefits from nature never before descended on the globe in any one ten years.

In 1837, Professor Morse, one of our own number, was already setting up his telegraph, bringing into its construction the well-known principles of the electro-magnet and galvanic battery; and now telegraphic threads, along which thought travels with almost the speed of light, are enveloping a large part of the globe.

About the same time, the fact of the deposition of copper from a copper salt, became a productive principle. It was found that copper could thus be deposited over an engraved plate, and a perfect copy made of every line or dot. The happy thought soon developed into a new art—that of electrotyping. A single engraved plate could thus be indefinitely multiplied, and the original retained unhurt.

But the art was not confined to this purpose alone. Books, till then, had been stereotyped by making a plaster cast of a surface of a page set in type, and then taking casts of lead in the plaster. Now they take the first cast in wax, cover its surface with powdered



black lead, and carry it to the galvanic battery. Thence, it soon comes out, a cast of the page in copper, far more perfect than the old stereotypes, more expeditiously made, and more durable. The Bible House in New York, is now full of electrotypes; they scarcely print from any thing else. The fine wood-engravings, so profusely adorning some of the Tract House publications, and many of the illustrated works and magazines of the day, are printed from electrotypes alone. Thus the great art of book-making, and therefore the whole world of mind, and all that is sacred as well as secular, are reaping results from a science that germinated first in that queer little pile of Volta's, which in the opinion of the economists of its time, was of no earthly use to any body. But if type and engraved plates, and wood-cuts, may be copied, why not copy other things in the same way? In fact, the process is used for the reproduction of works of art; and thus immense establishments now manufacture medals, bronze statues or statuettes, and bas-reliefs, in a style of great beauty and perfection, and at moderate cost.

Shortly after the first electrotypes were made, it was observed that the deposition of silver or gold, through galvanism, on copper, and some other metals, served as a convenient mode of plating; and to-day nearly all the silvering and gilding on metal required in the arts, is done by electro-plating. Minutes now stand for the hours of the old regime.

Some years ago, it was thought that if electro-magnetism could move the machinery of the telegraph, and mark down or print off the passing thought on paper, it would also register the beats of a pendulum. Or, if so willed, it would repeat the beats of any one clock all over the land, wherever it was sent along wires for the purpose. And already, in some cities, they are beginning to distribute and sell time as they do gas, one single time piece timing the town, as one gas establishment lights it. At Marseilles, they are, this very year, putting time-pieces, thus fed, into all the lamps of the lamp-posts along the public streets, which may be read at night as well as by day.

To our own country belongs the honor of this application of science. At this moment, the astronomical clock at Cambridge beats time in all the railroad depots at Boston; and but a few weeks since, the Dudley Observatory at Albany, proposed to supply the city of New York with time, the observatory drawing upon the stars for its supply.

The astronomer has other higher uses for the subtle agent, for he makes it his private secretary, requiring it to register on paper, the time of his observations, and help map off the heavens. If a strip of paper have a straight, uniform motion, and as it moves on, just touches the point of a stationary pen or pencil, a mark is made on the paper, which obviously would be twice as long for two seconds as for one; and so on. If then, for every second, a mark an inch long were made, every inch would represent a second. Thus seconds may actually be converted into feet, and time may be measured by the yard-stick; or with a delicate scale, a second may be subdivided into tenths and hundredths of a second. This simple and ingenious idea, the astronomer applies to his purposes by means of a clock and a telegraphic apparatus; and now instead of counting the ticks of his clock, he touches a key at the moment of a transit, or other event in the heavens; this makes a check on the paper, and so marks the precise time, even to a minute fraction of a second. The observations thus made, are not only vastly more accurate than those on the old plan, but may follow one another with incredible rapidity; so that in one night, more work can be done than before in a month.

This invention, the work mainly of American mind, by which electro-magnetism has become the astronomer's most faithful assistant, is now introduced into some of the best observatories of Europe.

The difference of longitude between points over this continent, and between Greenwich and the observatories of Europe, has been ascertained by the same means, and with like accuracy. This, too, was an American suggestion. And when the telegraph wires now in progress are laid across the Atlantic, the difference of longitude between Washington and Greenwich will be as exactly known. Who imagined fifty years since, that the galvanic fluid would help us measure distance on the earth, and that the geographer would have cause to bless the lightning as well as stars!

With equal facility, this agent has been adapted, as I have said, to the fire alarm bells of a city. Where employed, one man may strike every bell in the city, though miles apart, at the same instant; and a slight movement of the finger is all the power he exerts; at one tap, the ringing begins, and it continues without further effort. At the same time, too, instantaneous notice of the place of the fire may be sent to every engine house.

The same agent is playing errand-boy in hotels, displacing the

brazen-tongued messengers that were regularly kept on file in the office.

All these,—and many more results might be added,—are developments from that unseen force which Galvani and Volta were the first to recognize, after the world was almost *fifty-eight hundred years old!*

In this review of the useful in science, I have left wholly unnoticed the beautiful results of photography, and other uncounted gifts of chemistry to the arts, and the contributions also from the departments of light, heat, and natural history, that are variously enriching the world. But I must stop here, my illustrations, for want of time. I think I have abundantly shown that this modern age far transcends the ancient world, through its obedience to the injunction, *Subdue, and have dominion*; that man has thereby grown in wisdom and power; that progress in science is hence demanded as our bounden duty. Every principle of our being prompts to its study: our love of the beauty and grandeur of truth; our eagerness for startling developments or novelties; our ambition as a nation to rise in wealth and honor; our very avarice: all urge us to search out nature's laws. And those whom I have the honor to address will also appreciate the still nobler sentiment, that God is here making displays of his glory, and giving lessons to man on a subject loftier than art, even his own transcendent wisdom in the great plan of creation.

Science is an unfailing source of good. And as the laws of God are universal, even more so than air and water, so every new development is destined to bestow some universal blessing on mankind. Complain not, if the reward be long delayed. Man has not the prescience that entitles him to declare any truth in nature useless, however barren to present view. The tree and fruit come from the germ; and no one will denounce the seed because the blossoms are not yet visible.

If evil appears mixed with the good, let us remember that it is so mixed in the heart of man, and this is its only source. The face of nature is as pure as the atmosphere of heaven, and if, in our looking, we see aught that is bad, it is a graft from tainted humanity.

The working of self-reliant mind, not the study of nature, has been the prolific source of error in philosophy and religion. Proud man, trusting to himself, looking within for knowledge, and hoping by simple, unaided thought, to fathom the depths of nature as well

as mind, has reached one error after another; and thus pantheism and other false systems of belief have been engendered.

Mind, through its intuitive principles, and its capacity of cultivation and development, is made for the contemplation of God's works and word; and it is our exalted privilege thus to be pupils,—pupils of the infinite God; himself our teacher and our study. For his works and his word are two revelations of himself which he has adapted to our finite natures:—the *first*, a manifestation of God the Creator, displaying his wisdom, power and beneficence; the *second*, a manifestation of God the Supreme Ruler, exhibiting his holiness and love, and having its consummation in the advent of Christ, who is "God with us," the light and life of the soul. In apprehending spiritual things, we thus are not left to ourselves; we even have besides this revelation, the aid of the ever-present Divine Spirit. And with regard to God's works, we search our own minds in vain for truth: but looking to the works themselves, we find wisdom welling up even at our feet. This wisdom is that we call *science*, the science of nature.

It is painful to witness the dread of this science that is so often displayed, when, as I have said, the real origin of mischief, as far as it is intellectual, is in that old method of philosophy which makes systems of nature out of baseless cogitations.

Geology, of all the sciences, has been most denounced for alleged infidelity: and yet it is the very one among them, that has come most valiantly and successfully to the combat against error. It is proving, what none other could prove, that God's hand, omnipotent and bearing a profusion of bounties, has again and again been outstretched over the earth; that no senseless development principle evolved the beasts of the field out of monads, and men out of monkeys, but that all can alike claim parentage in the Infinite Author; that the earth has been ordered through a long history, in its plant and animal life, its accumulating rocks and minerals, its rising mountains, shaping continents, and deepening seas, with reference to man, his whole intellectual and religious development. Tenfold power beyond that from any other source, is thus given to the evidence of a moral and spiritual purpose in creation; and this established, we have the highest proof nature can afford of a personal God over creation.

Science should not be feared. Her progress is upward as well as onward, to clearer and clearer visions of infinite beneficence. Her platform is not a shifting one. She stands on truth, looking

wistfully to brighter realms above. And if, while in eager gaze, her conceptions respecting regions yet unreach'd are vague, or in any way erroneous, each step forward is to a higher level, where she may resolve what before was dimly seen. Thus she rises from truth to loftier truth, dispelling the error that may be mingled with her deductions. Press her forward, then, with all your might; for in her progress, the finite is taking proffered strength from the Infinite. It is cowardly, it is wrong to God and ourselves, to doubt.

The Atheism which has long possessed much of the intellectual philosophy of man, may and will strive to use the developments of science for its ends; and in this evil world, a blighting influence from such a source will long be felt. But the course of research is tending to ward off the evil, and make science what by divine appointment she must be, the faithful handmaid of sacred truth.

A pestilential cloud has recently passed over the country, which has marked its track every where with infidelity. It was not a natural emanation from God's works, but the same in origin with the vapors that shrouded the world in the ages of superstition, when mind was oppressed by its own imaginings. Scientific men have often been blamed for a want of interest in the phenomena. But it was mainly power drawn from nature by faithful research, that annihilated those spirits, black, white, and grizzled, of olden time; and surely there can be no less hostility to the breed now. The height of the pestilence has passed; and the best preventive of another return we can offer, is a strong infusion of inductive science.

We have reason for gratulation, that our country is beginning to appreciate the importance of scientific culture. A general movement in its favor, is in progress over the land. From the east to the far west, from the north to the south, there is a rising voice calling for this knowledge that makes nature our helpmeet in industrial pursuits, as well as our instructor in lofty truth. Universities are planned in various States: more than one has been projected in New York State alone, and in her great city, a magnificent temple consecrated to industrial science now stands nearly complete. Endowments are made to this and that institution, to meet the urgent want. Six years since, the half century closed, and a large part of the semi-centennial sermons then preached, were mainly on the triumphs of science in the fifty years just passed; and although not so recognized, it was in fact a scientific jubilee. It was followed soon by the Crystal Palace exhibition at London, and then

another in New York, and others since in Europe,—all tending to arouse the attention of the world to the true basis of national greatness, the harmonious blending, under the highest intellectual culture, of Art, Science, and Religion;—Science bestowing her profusion of gifts on genial and pliant Art, and at the same time offering her first fruits to Religion; while Religion is pointing both Science and Art upward to the source of all knowledge, and guiding them in the way of truth and righteousness.

But while the necessity of instruction in nature-truth is appreciated throughout the land, it is not clear to all, what is the best mode of supplying the need, or, in other words, what kind of schools of science and art, the country demands.

It is plain that they must be of various grades. There may be the trade school for the child, especially such children as are objects of charity. There should be other schools for youth frequenting our institutes, and for journeymen in all the various trades of the country; and then still higher schools, where teachers shall be taught, which shall be head fountains of knowledge supplying the land with its engineers, its architects, its agriculturists, its thoroughly grounded mechanics, as well as its chemists and professors in theoretical science.

In most of the schemes for these higher institutions which are brought forward, there are two prominent errors demanding brief consideration.

*First*, what is thought to be needed is the practical mainly. None of your theories, they say, but the practical, unaware that the practical rests upon the true scientific as its basis, and that the two must go hand in hand, as they are one in their aim, and parts of the same system of truth.

But, *secondly*, where science seems to be appreciated, there is a tendency to be content with a meager allowance; or, with careful regard to economy to get out of one man the duty of half a dozen.

In a small village, wares of all sorts, and only a little of each, are necessarily gathered into a single shop. In striking contrast with this appear the multiplication of warehouses and profusion of each kind of product found in a large city. America has always been to Europe, as regards its means of scientific instruction, like the country to the city. But are we always to remain a country village along side of Europe? With twenty-eight millions of population may we not yet have city privileges?

Even little Saxony, with a population less than two millions—



about the size of Connecticut, Massachusetts, and Rhode Island,—has a Mining School with thirteen professors, delivering lectures on Physics, Chemistry, Mineralogy, Geology, Descriptive and Practical Geometry, Mining Machinery, Metallurgy, the Blowpipe, Assaying, Mining Jurisprudence, Drawing, and the French Language, while the greatest number of Professors that in the American mind was ever dreamed to be necessary in such an institution is two: a professor of mining, who should also be a geologist and a mineralogist, and a metallurgical professor. Indeed these two distinct branches many would think might be in the hands of one, although no mining company would trust its furnaces to the mining engineer, or the sinking of shafts to the reducer of ores.

But Saxony, although so limited in territory, has, besides this mining school, a University of one hundred and nine professors and instructors; also five schools of arts and design, with thirty instructors; and seventeen trade schools of the first grade, with ninety-three, in the country towns, of lower grades.

Saxony is a fair example of most European states. There is no counting of dollars as to the exact cost of educating boys per head, as if raising cattle, but a wise determination to have the best of educational institutions at any expense.

Russia, thought of by many as a land of semi-barbarism, has at St. Petersburg a school of mines with forty-three professors, which is furnished with splendid cabinets of minerals, ores, and models; and among the models, there are great subterranean rooms, showing the whole inner structure of mines, into which you may descend and examine the underground works.

There is also a school of forestry, having in view the culture of trees, which has its immense gardens or forests of both indigenous trees and species brought in from various parts of the world, besides cabinets of all kinds of woods; and it controls a corps of emissaries, which it dispatches over the land for the care of the trees of the empire.

In addition to these, there are seventy-five subordinate mining establishments with two hundred and forty teachers and near seven thousand scholars; also, an extensive central school of agriculture, with various subordinate establishments; also another central school of industrial mechanics, and chemistry; another of engineering; and so on.

There are certainly some things in which we are *not* ahead of the rest of the world. And shall we not look abroad and learn wisdom? It is well known that to meet the demands of the age,

and secure success, broad plans and large capital are required. So in educational institutions, like those of which we speak, two or three associated professors may do something: but a small school will only creep along, and may be crushed by ambitious rivals. We shall find, however, a different result, if the school expand to an efficient size:—if it become a place, where the agriculturist can obtain a complete agricultural education, from chemistry, geology and the nature of soils, to the practice of farming and the raising of animals; where the mechanic may learn all that pertains to the metals and other material in machinery, all the applications of chemistry he requires, the laws of motion, the methods of applying power, and whatever is novel or instructive in the most recent patents; where those following the chemical arts, shall be equally well supplied with a good foundation, and principles as exemplified in different branches of manufacture; where the architect and engineer shall find instruction on building material and cements, in the mathematics of arches, bridges and structures generally, in physics, the use of instruments, practical engineering and drawing, in the principles of taste and the history of works of this and past times; where, too, those who would pursue science for its own sake shall be aided in acquiring all that science can teach, that they may go yet deeper in research, and bring to light other facts and principles to increase the wisdom and strength of toiling man.

The theoretical and practical should go together and on a scale of magnitude sufficient to produce results of value. Let each one whose pursuits bear on the arts or sciences compute what his special department requires, and then let all the results be combined, the decision will assuredly be that we need for efficiency a great institution, something corresponding to the country in its extent and enterprise.

Why is it that France, without mines and with few resources, is yet one of the wealthiest nations of the world, and in advance of others in the quality of many of her manufactures. France knows that there is inexhaustible wealth in nature's laws, and encourages science among all grades in society. She has her many schools of science in which the practical and theoretical are conjoined, and all under thorough organization.

At Paris there is the great Central School (*L'Ecole Centrale*), the Conservatory of Arts and Trades, the School of Engineering, the School of Mines, the Polytechnic School, besides the famous Garden of Plants, an institution with vast museums and

numerous instructors in all branches of science. Subordinate to these, there are schools for special departments distributed over the empire, meeting the wants of every particular manufacture in all its details.

The French government directs special attention to the art of design and improvement of artistic skill and taste among the people, having the wit to see that taste expended on iron or copper may multiply many fold its prime value, while mere labor adds but a small percentage. The nation encourages especially chemical investigation, and reaps one of its rewards in having dyes that claim universal admiration, throwing into bad repute our Merrimack imitations; and having colors for porcelain, that also reproach us. These are two out of many examples that might be mentioned.

Prizes also are annually offered for new discoveries or investigations, and every incentive thrown out to scientific activity. From this encouragement of the arts and sciences proceeds very much of the strength and wealth of the French nation.

England saw the contrast to her disadvantage at the Crystal Palace exhibition in London, and has since organized the Department of Science and Art among the departments of the government, designed to carry out a system of scientific and polytechnic instruction over the land; and to this end £80,000 (\$400,000) were appropriated for the last year.

A moment's consideration will help us to comprehend the working of such a system of education. It is to be observed that the plan we contemplate, would include mathematics to its highest departments and through its various applications; the different branches of physics and chemistry; geology in its grandeur as a record of the past, and also its developments respecting mines, building materials and soils; astronomy; mineralogy, zoölogy, botany; the logic and philosophy of the inductive sciences; modern languages, and their connection and origin; geography in its relations to climate, history, commerce and the progress of nations; drawing and the history and criticism of art; all these, besides the practical arts and sciences in their diversity.

In the first place, then, the institution in view would open a wide range of university education to those who have not the requisite Latin and Greek to pursue the ordinary college course. The plan so blends the departments of knowledge taught, that the student, if he remains long enough to take the benefits offered, will come forth,

not shaped only for a single narrow channel of life, but with cultivated intellect and broad views of the world.

In the second place, it would make proficient in special departments fitted for stations of responsibility, men, who have acquired that wide range of principles and familiarity with their operations, which will render science a tool in the hand for farther progress. You now rarely find one among our common mechanics who knows the various qualities of the metals he is working with, or the laws of motion connected with machinery, or what is new or old, exploded or accepted, among inventions. And one consequence is, that the man, although of much general intelligence, is confined to his single thread, year after year: another, that his talents, if he have ingenuity, will often be wasted on worthless inventions, or efforts to work out what was long since known, or perhaps in laborious pursuit after that mechanical *ignis fatuus*, perpetual motion. Instead of starting with existing knowledge to work successfully to a higher level, he is groping in the darkness that was long since dispelled from the walks of true science and art.

There has recently been a "perpetual motion" machine in this region. The inventor knew the deception he was practising. But a large part of the mechanics that saw it were more than half satisfied that the great problem had been here solved, and incredulous science proved at fault. But should the secret be divulged, they would be surprised to find how they were deceived. All the arts afford similar illustrations of wasted means and misspent powers.

Again, such an institution would furnish men able to teach and spread sound knowledge around them, and so raise the standard of art education, besides protecting multitudes from follies and foolish expenditure.

Again, it would call into play the latent talent of thousands that now tread only in beaten paths, and open numberless channels of labor almost unoccupied. It would cultivate general taste, which is becoming more and more important in all our manufactures. It would tend to render the laws of nature universal in their benefits, by placing them at the command of the many over the land. With such results, the institution would assuredly become a chief source of national wealth and prosperity.

It is a striking fact, illustrating our poverty as an industrial people, that Mr. Goodyear, now in Paris, could not find the taste or artists here, able to design or make the articles which he required in the development of the india rubber manufacture.

There is, too, the still wider fact, that very many of the arts are pursued in this country only through artists imported from Europe.

We *should* have our own centers of strength and vitality; and this we aim to secure. With a plan of education of the kind explained fully carried out, the country may hope to take a stand on terms of equality with other civilized nations.

Here is a system of internal improvements that looks deeper than to the welfare of harbors and rivers. It strikes at the working mind of the nation. It takes its station above the common and high schools, to receive the youths there prepared with the elements of knowledge, and fit them for positions of honor and usefulness in the sciences, commerce, manufactures, agriculture, and other walks of life.

The results looked for, will not be the outflow of the University in itself alone. For such University schools produce, as a natural consequence, subordinate schools. The lower trade schools, where the details of each trade shall be taught, will multiply over the land in every town or county, as part of the fruits of the system. The university must first exist to afford the teachers for such schools. Once in full action, a flow of benefits will proceed from it that will cover the continent.

I have said that the age was calling for schools of science, and that many attempts are making through the land to meet the call.

The question with us is, shall this be the great seat of learning for the country? Shall the institution which took root with almost the first germs of civilization on the continent, and which has spread its branches widely, so as to be second to none in its compass and influence, still continue to expand with the expanding mind of the world? Or, shall we be content with the past, and see others imbibing the spirit of the age, and through the new vigor derived, rise beyond us, till like other shaded plants, Yale shall begin to dwindle, her laurels fade?

Ten years since, the Department of Philosophy and the Arts was projected (and the following year instituted,) by the Corporation of Yale College, to cover special instruction in general and practical science and the higher branches of literature. At that time, in 1846, the Yale School of Science, embracing chemistry applied to agriculture and the arts, was commenced, under Professor Benjamin Silliman, Jr., and Professor John Pitkin Norton, the latter, to our grief and great loss, since deceased. They worked

zealously, and for naught but the satisfaction of promoting the spread of scientific knowledge; for the income of the year never exceeded its expenditures. This school has continued its existence, and in it, many of the best young chemists of the land have taken their first steps in science. A professor of engineering has since been added; and already over 300 pupils have been here under instruction. As the school now stands, it has a professor of chemistry applied to the arts, a professor of agricultural chemistry, one of metallurgy, one of engineering, and through its connection with Yale College, one of geology, mineralogy, and general zoölogy; in other words, as is seen, one professor corresponds to a whole school of professors abroad. Moreover the school is without endowment. Still, there is here an organization, embracing nearly all that is required in theoretical science, with a part of the practical; and though incomplete, it has had a good measure of success.

The present organization only needs expansion, and adaptation to broader purposes; that is, a full corps of professors, so that the several sciences and arts shall all be subjects profoundly, and not one-sidedly taught; and it is important that there should be included that thorough instruction in the philosophy of geography, history, language, taste, and inductive reasoning, which will make the graduate an educated man, and an honor to the university. Several gentlemen of the College faculty, and others on the ground, are ready to coöperate toward this great end.

As the different departments contemplated in the plan are all embraced in one school, each does not require an independent corps of teachers; for a professor may instruct in half a dozen different sections, without much increased labor. A full organization, therefore, could be accomplished with only a moderate number of men, not much exceeding the corps of a school for a single department abroad.

The execution of the proposed plan, requires also a building, containing laboratories, lecture-rooms, and a museum of specimens and models; it needs, too, a farm for the agricultural department.

The museum, moreover, should be a spacious one, containing collections connected with all the subjects taught in the school: specimens in natural history; seeds, soils, implements and plans for the section of agriculture; models of bridges, arches, buildings, roads, aqueducts, samples of materials for construction, and a cabinet of physical apparatus, for the sections of engineering and architecture; collections of machines, models of new inventions, involving important principles, and collections of materials and im-



plements for the section of industrial mechanics, collections of art-products in all their stages of perfection, and their many varieties; collections of ores, and metallurgical products, models of mines and furnaces for the department of mining and metallurgy. In fact, the museum should lecture to the eye, and thoroughly in all the sections represented, so that no one could walk through the halls without profit. It should be a place where the public passing in and out, should gather something of the spirit, and much of the knowledge, of the institution.

Already, through the liberality of one of the citizens of New Haven, a fine lot has been set apart conditionally for the school,—one more beautiful or more convenient could not be found in or about the city. The condition is simply that of occupation and our having the means of success. No city in the land is a more favorable place for such an institution. The presence of the College, her large libraries and mineral collections, her professors and means of instruction, give it a vast advantage, being a portion of the capital of the school greater than we can estimate.

There is another need, which has not been alluded to, as it requires its own liberal foundation. I refer to an astronomical observatory. Yale, to this time, has none. The temporary arrangement on College grounds, where the Clarke telescope stands, merits many honorable words for directing early attention to this subject, and for its able contributions to astronomical science. But it is not an observatory, and has not been so regarded; and one fine instrument, the gift to the College of William Hillhouse, Esq., of this city, is stored away for want of a place to mount it, while an astronomical clock, from the same generous donor, is wasting time in the Library. May Yale, which had an early start in this department, be unsurpassed in her equipments, whenever the time for action comes. The regions of space to their farthest penetrable limits, will then be within her range of vision and study.

The department of philosophy and the arts, here instituted to embrace these various subjects, stands on the same independent basis with that of theology, law or medicine. While each is alike independent of the College proper, or academic department, one mantle covers all, and the same seal and the same honored name are affixed to all the diplomas.

My remarks thus far have had special reference to scientific courses of study, since these are less generally understood, and are more neglected among us, than those of any other branch of education. But the plan does not stop here: only a little wider expan-

sion of the scheme,—such as is contemplated, in fact,—and it will cover the highest branches of literary as well as scientific education, adapted to carry forward the graduate of the College, through a full university system of classical or other studies. Let there be a one or two years course of lectures and instruction arranged, which shall include general history, philology, ethnology, belles lettres, the history of philosophy, and other intellectual studies, and the number of resident graduates would greatly increase, and a new era dawn upon American learning. Not till this is accomplished, will the department of philosophy and the arts projected, become a realized fact. Not till then, can we hope to prevent our youth from seeking in the atmosphere of Germany the knowledge for which they yearn. The tide in that direction is on the constant increase. In one year, out of a dozen students in the Yale scientific school, half of them left for Europe; and the walks of literature illustrate the same fact. It is surely time for earnest and determined action.

#### GENTLEMEN OF THE ALUMNI:—

The plan is before you. It bears its own evidence that in the will of her men and the breadth of her aims, Yale is determined to be up to the times. The desire is manifest that the College, as it now stands, shall not longer mark the limit of American training in literature or science, but that higher paths be laid out, and broader fields surveyed and occupied.

Notwithstanding the clouds about our political horizon, we believe that America, free America, is to be the hope of the world; that she will yet take the lead among the nations, in population, wealth, education, benevolence, and all that adorns humanity. And in this growing nation, we see our revered Alma Mater, great also,—unexcelled; in the number of her students, beyond every other; in active interest in the welfare of her youths—but we would not boast. The first university in the leading nation of the globe,—dare we hope it? Why not let it so be? Why not have here, in this land of genial influences, beneath these noble elms, that seem like a realization of the classic shades of Greece,—but where a higher philosophy than that of Socrates, the philosophy that centers in Christ our chiefest glory, is the pervading spirit,—why not have here, THE AMERICAN UNIVERSITY,—where nature's laws shall be taught in all their fullness, and intellectual culture reach its highest limit! The affluence of nature should be our model; and if so, the greater the glory to this seat of learning, and the vaster the blessing to our country and the world.

## VIII. THE EDUCATION REQUIRED BY THE TIMES.

BY RT. REV. THOMAS M. CLARK, D.D.

[An Address delivered before the American Institute of Instruction, at Springfield, Mass., on the 21st of August, 1856.]

I HAVE the honor to address the members of that profession, which, above any other vocation, must form the mind of the nation, and thus control its destiny. It is impossible to unduly magnify your office: every day it is becoming more and more important. Upon the faithfulness and ability with which you discharge its solemn functions, depends the successful issue of those great social problems which are committed to the American people for a practical solution; and if it shall be the fate of what have been technically called the learned professions to lose their relative influence in society, it will be because you have educated the popular mind up to their level; and then, of course, your profession takes the ascendancy.

At such a time as this, it becomes you to cherish a sound and wholesome enthusiasm in respect of that great work to which you have devoted yourselves. Above most other employments, it is a work which needs this stimulus. In some departments of life, men may work simply for wages, and still do their work well. Not so with you. Considering the solid amount of labor that is required of you, and the immense importance of your work—so far as money is concerned—you are more poorly paid than any class of persons in Christendom. If gold and silver are what you want, you will do far better to study French cookery for a month, and then practice as *artists* in the matter of bodily, rather than mental feeding. But it is to be presumed that you are actuated by higher motives. It is not easy to conceive how you can engage in so arduous and responsible a business as that which you have chosen, without a natural love of the profession. And this very taste is, in itself, of an elevated and unselfish character—the best possible assurance of faithfulness and success in your work.

The thought of universal education is comparatively modern. Among our ancestors, it was never dreamed of that the stores of

knowledge were intended to be thrown open to all mankind: a few of Heaven's favorites might be allowed to read and write, and exercise their mental faculties within certain defined limits; while the rest of mankind toughened their muscles by physical labor, or relaxed their weary frame in animal enjoyments.

And there are men among us who are still haunted with the fear that we are carrying this matter of education too far, and who think it a somewhat perilous experiment to train all classes of men to think and investigate. There may be somewhat of a selfish pride connected with this fear. Those who have a funded interest in any great monopoly, are generally rather shy of ambitious rivals. But the great question is, whether it is better for the community to have a few learned men to give direction to public sentiment, with a great substratum of brute and stolid ignorance, or to let in light and warmth upon that dead material, and thus quicken it into fruitfulness and life.

In that favored portion of the globe where our lot is cast, this point has fortunately been determined already, and is now beyond reach of re-consideration. And yet, we labor under a gross delusion if we imagine that the standard of general education has reached its proper elevation. The time will come when the quality and quantity of education now given to the mass of our children, will be looked back upon as very crude and imperfect. It is supreme folly to suppose that we have nothing to do but just to perpetuate and keep alive the style of education which satisfied our forefathers. In the process of reform, we may expect that occasional failures will be made: as a man, in perfecting a machine, will fall into many errors, and be obliged from time to time to cast aside portions of his machinery as useless and unserviceable. But this fact should not discourage us; we learn wisdom by our blunders.

At the basis of all progress in our system of common-school education there must lie a more general interest on the part of our citizens in this subject, and a more profound conviction of its intimate relation to the whole welfare of the country; an interest and a conviction that shall be *practically* manifested by pecuniary appropriations far more liberal than have heretofore been made. It will be impossible long to retain the talent and intelligence which are needed to elevate our schools to their proper condition, at the rate of compensation which is now paid to teachers; and the very highest order of ability ought to be found among the educators of the

nation. It should be made for the interest of men carefully to train themselves for this special vocation, with the direct view of making it the business of their lives.

If appropriations which are made to public education were increased four-fold it would be in the end a positive saving to the community. I will take two villages, with the same amount of population and similar resources of wealth. In the one we find a substantial and tasteful edifice, with trees shading its ornamented porch, attractive to the eye and suggestive of pleasant associations; made comfortable and cheerful within; furnished with the needed apparatus to illustrate and enliven study; and all under the direction of an intelligent, well-educated teacher, who is so liberally paid that he can afford to become permanent, and identify himself with the interests of the community in which he discharges his important functions. In the other village there stands an unpainted, dreary, rickety old structure, placed where it is hottest in summer and coldest in winter; the interior as repulsive as a jail-cell; the walls begrimed with the smoke and smut of many generations; the ridged floor undulating as you walk over it, and the narrow benches requiring a constant effort for the children to retain their seats; the school-books such as have been handed down from a former day, with the inky imprint on the covers and the uncouth pictures on the leaf testifying to the children of their fathers' skill and indolence; and the whole concern presided over by a rotation of teachers, kept on starvation wages, the lowest bidder being considered the best instructor.

Now look at these two villages after the lapse of a few generations, and see how much poorer the former has become through its liberal expenditure in education; and how much has been gained by the parsimony of the latter. Intelligence and virtue have filled the one with wealth and comfort; ignorance and vice have reduced the other to poverty and wretchedness.

In a republic like ours, every dollar judiciously expended upon education is a dollar saved. Far in advance of most countries as we are, as it respects this great subject, we are still stammering through our alphabet. More especially in our smaller towns, and in our rural districts, the progress we are making in general education is very slow—in some regions almost imperceptible; and I know of no way in which the people at large can be aroused to a proper sense of their duty to the rising generation, and the obligation which they are under to provide for their children a style of education in advance

of their own, unless it be by the patient efforts of teachers themselves. Let them thoroughly understand just what is needed; let them feel in their hearts the tremendous interests that are at stake; let them become fired with sacred enthusiasm, and they may enkindle light in regions which are now sitting in darkness. It is hard work to be called upon to teach not only the children, but the fathers; to go round from house to house and break up the crust of prejudice; and oppose the suggestions of avarice, and listen patiently to the croakings of stupid ignorance; and lead the father to provide for his child a benefit, the value of which he himself is incompetent to appreciate. If this be too much to ask of them, they can at least endeavor to elevate the standard of education with such material as they find provided for them, trusting to the impression which may be thus produced upon the community as the means of liberalizing their opinions and exciting their interest. The child himself may become the instrument of leading his father on to higher views of the value of knowledge. He may carry home from the school-room an enlightening and invigorating influence which will break the dull torpor of the domestic circle, and awaken there a spirit of inquiry which shall gradually react upon the school-room itself, and lead to more ample provision for its necessities.

But it is time for me to speak of that which I intended to make the chief topic of remark this evening; I wish now to direct your attention to a few particulars, in respect of which it is important that we should seek to improve upon the past.

1. And, first, we must learn to appreciate, more and more distinctly, the *physical* conditions of a sound education. It is to be considered that, in dealing with the child, we have to do with a material organism, and it is of prime importance that the machine should be in good working order. There is no subject, at all commensurate in importance, which has been so much neglected, in the training of the young, as physiology. Among what are called "good people," the subject itself is regarded with a degree of aversion, as savoring of materialism, and as irreligious in its tendency: its principles are not altogether consistent with the doctrine, that if the heart can be set right, the brain may be left to itself, and that, upon the whole, a diseased body is rather conducive to spiritual health. It is the same sort of blind prejudice that originally resisted the introduction of lightning-rods, and the insurance of property, and vaccination, and efforts for the cure of insanity, as an unwar-



rantable interference with the dispensations of Providence. But let any person recall the experiences of his own childhood and youth, and say, whether, if he had been trained upon sound physiological principles, he would not have been intellectually and morally advanced far beyond his present point of culture. Are not the indolence, the inertia, the want of mental concentration, laxity of memory, restiveness under discipline, weariness of study, as well as numberless *moral* evils, traceable to physical causes, which are, to some extent, capable of remedy? Why is it that, sometimes in a single hour, that task is easily and cheerfully accomplished, over which the child had before been hopelessly groaning for a whole day? Why is it that the school-room, at certain periods, seems to be pervaded with the malaria of inattention and disorder—every eye roving listlessly, mouths yawning, legs and arms moving convulsively, the teacher himself catching the infection, and beginning to feel his vocation the most dreary and hopeless and unthankful of all mortal avocations, and longing for the hour to come when he may dismiss the school, and breathe the free air again? It is precisely the same reason which makes the polar bear droop in a hot, stifled menagerie. The difficulty is atmospheric; and that instinctive desire of the teacher for freedom, ought to suggest the remedy.

Within the last thirty years there has been great improvement in the outward arrangements of education, in the construction of school-houses, in their furniture and fixtures, in warming and ventilation; there is also more of variety in the exercises of the school, and, I believe, some abbreviation in the time devoted to study. Remembering the sad experiences of the school-room thirty years ago, I am satisfied of the need of such improvement. Let us revive some of those early reminiscences.

It is a winter morning, and the thermometer stands somewhere in the neighborhood of zero. Clambering toilfully through the drifted snow, with aching feet and tingling face—for those were days when overshoes and fur-caps for boys were unknown—we arrive at the school-room somewhat before the hour, in order to be certain to be punctual; and there, in the little entry, some ten feet square, crowded together like bees, we wait the advent of "the Master;" for it is not thought safe to give us the range of the school-room in his absence. As the clock strikes nine, he arrives, and we enter. Half an hour before, the boy, whose turn it is to make the fire, has crowded the six-plate stove, which stands in the centre, with a ple-

thoric quantity of unseasoned wood, which in some remote corner is beginning slowly to ignite, and the smoke is oozing from the crevices, mocking the senses with the smell of fire, that has thus far affected the atmosphere in no other way. In process of time, however, we begin to see the red spot on the iron, which betokens approaching relief, the smoke somehow becomes gradually absorbed, and distant objects are visible again. The grateful moment at length comes, when we are allowed in squads to thaw ourselves by drawing around the iron altar, and extract the frost from our slates, which were very often stratified by the operation. Having in a few moments become as red as lobsters by close proximity to the red-hot stove, we are sent back to our seats to commence in earnest the labors of the day. There is something truly grateful in the warm slate, which before this was so cold that the moist hand clave to its icy surface, and with joyous hearts we address ourselves to solve the arithmetical mysteries of Daboll. But as the morning wears away, and the thermometer has mounted from freezing to summer heat, or would have done so if there had been such an instrument in the room, and we have continued hour by hour to breathe over the same atmosphere, until all its vitality is gone, a strange lassitude comes over us, and the sums, which we began so vigorously, somehow will not come out right, and the mind wanders off, from calculating the profits of a cargo of molasses, to dreaming in a sort of waking vision how pleasant it would be to have our school-days over, and to go to sea, and travel in strange countries, and visit Bagdad, which we imagine must be to this day a great centre of commerce; and while we are in all the glow of oriental splendor, and shaking hands with Muftis, and hearing the tinkling of camels' bells, and listening to the Muezzin's call, the vision is suddenly broken by another call to "come up and recite." It is like being awaked out of a sweet sleep, and told to get up and be hanged. The fact is, we were, to use a modern phrase, psychologized by the narcotic influence of a deoxygenized atmosphere, and were no more competent to study or to recite, than we would be to solve a logical problem under the effects of chloroform. The ten-minutes' recess, in the middle of the forenoon, was indeed a blessing, or would have been, if there had been any suitable place for winter recreation; but, as we should be frozen out of doors, and there was no great inducement to remain in the unventilated school-room, the only resource was the cellar, which, with all its cobwebs, and chips, and dust,

and gloom, was better than nothing. In the afternoon, except that the studies might be a little lighter, and relieved by a few declamations from that storehouse of eloquence, the Columbian Orator, the atmospheric difficulties made the case still worse. It is true that we escaped the primary freezing process, unless by accident the fire went out, when the frost-king resumed his sway almost instantly. What painful efforts have we made, under such circumstances, to grapple with our lesson, and find some crevice for it in our mind! And how the letters on the page would seem to swim, and one sentence run into another, and the definitions in the grammar look like a jargon of words—which indeed they sometimes were—and then how pleasant we thought it would be to go to church on Sunday, and hear the minister preach a sermon, with some of his most startling words put into it, from the text, "Much study is a weariness to the flesh!"

In the summer season the case was not much better, for then we had our eight or nine hours in school, instead of six, besides the hard lesson to be learned between schools. This, too, was the time when we were to be crammed for the annual fall-examination, a process conducted very much upon the same principle that cattle are fattened for the market: the object being, not to make them serviceable for future labor, but to look well at the sale.

Now I believe that if, instead of forcing the child to spend so many long hours in the school-room, at a season of the year when nature calls us to be out of doors, listening to her music and studying her beauties, he were told that, on the condition that he will complete his allotted tasks in half the time, he may then go forth into the green woods, or wherever else his feelings lead him, those tasks would be more thoroughly mastered, and his whole physical and mental being left in a better and healthier condition.

There are other particulars bearing upon this portion of my subject, of which I should be glad to speak, but there are so many topics, which I desire to notice, that I must be content with merely throwing out a hint or two upon each as I pass, leaving it with you to complete the outline.

2. The second point of which I would speak, is the importance of carefully distinguishing and recognizing the *peculiarities of individual temperament*, in our modes of education. In large schools, where it is necessary that there should be great method, and a uniform routine of discipline and study, there is considerable difficulty

in the practical application of this principle. In seeking to deal out equal justice to all, there may be injustice done to some. There is, among the pupils, every variety of capacity and of susceptibility, and yet one law must govern the whole. But the blow that is needed to bring out the faintest sound from one instrument, would shatter another, of a more delicate texture, in pieces. If, however, the teacher have in himself a true sense of the sacredness of childhood, he will instinctively conform his treatment to the idiosyncrasy of his pupil. He will be careful not to handle with roughness the frail vessel, which one rude touch may shiver. There is an agony, sometimes endured by the child endowed with a refined susceptibility, which deserves our profoundest pity, under a discipline that his rougher companion would only laugh at.

I do not mean that the teacher's discriminating attention should be expended only upon such as are likely best to reward his efforts: so far from this, special pains ought to be taken with those who need it most, whether it be because of the refinement or the *defects* of their natural organization. I can recall more than one of the companions of my boyhood who, by judicious and discriminative treatment, might have been trained to become useful members of society; but, inasmuch as they were conspicuous for certain repulsive and disagreeable traits of character, joined with a kind of dogged dulness, they seemed from the very first to be given over as predestined fools and hopeless reprobates. Now let a child once understand that this is his accredited reputation, and he is very certain to make it good; only take it for granted in your dealings with such a boy, or with almost any other sort of boy, that you expect him to lie, that you would be surprised to hear him tell the truth, and he will soon learn to lie fast enough. Meet him uniformly with a frown of displeasure, and he will meet you with the scowl of hatred; show him that you have no faith in his sincerity, and he will lose all faith in you. How many an honest though feeble effort to reform has been effectually checked for want of a word of kind encouragement! There is some chord in every child's heart which can be made to vibrate under the touch of sympathy. If we will only be at the pains to find out where that chord lies, we may be able to draw from it a soft note which shall gradually overpower the harsh discords of the soul, and bring the whole nature into harmony. To save a soul from death, and society from the blight of a corrupt example, is certainly worth a vigorous effort.

One of the most important lessons for a teacher of youth to learn is to make due allowance for natural infelicities of temperament and a defective organization. It should be remembered that no being is responsible for his nature, and that it requires a far greater struggle for some to do right than it does for others. It is hard for a child to be given over to neglect and contempt because he was so unfortunate as to come into the world with a misshapen organization. He certainly could not help it, and therefore he would seem to be rather an object of pity than of censure. It is, to be sure, not so agreeable to expend our labor upon a gnarled and knotted block, which it seems almost impossible ever to shape into decent symmetry, as it is to carve the soft and smooth-grained wood into forms of grace and beauty; but then, let it be remembered that the toughest timber is, for certain purposes, the most valuable, if it can be only hewed into shape. The sturdiest men are often such as have become so by vigorous resistance of evil tendencies; they have been made strong through bloody battles with the demon within them.

I think that, in dealing with children, we should assume that every human being is good for something, and is reclaimable, however bad the material may appear to be, if he is only taken in hand early enough. When we see what has been done for the intellectual elevation of idiots; how, by patient and philosophical culture, the minutest germ of thought has been so developed, that the child who would once have been considered as beneath the companionship of a respectable dog, becomes actually useful to society, we ought not to despair of reformation in the case of the most depraved. If the same sound philosophy were brought to bear upon the *moral* culture of the race, the results would be not less astonishing and cheering.

3. Passing now to the more direct consideration of education, as a process of *intellectual* discipline, I would remark, in general, that it is somewhat difficult to reconcile a becoming reverence for the usages and opinions of the past with the strong conviction that a positive and radical improvement is needed in our modes of teaching.

Certain great questions here suggest themselves (which I suppose it to be one design of your Conventions to consider), which demand the most serious and thoughtful discussion. The narrow limits to which I am confined will allow me simply to allude to some of these topics, with the addition of a few general observations.

(1.) And, first, is it desirable, as far as it can be done, to render all branches of study attractive; to carpet the pathway of knowledge with flowers, and make the landscape fair and beautiful? Is it well that our text-books should be enlivened with pleasing illustrations, with pictures, diagrams, and anecdotes, to attract the eye, and aid the memory, and enkindle the imagination? Or, does the proper discipline of the child require that he should be led along a dry and dusty road, and be forced to clamber over ragged rocks, and painfully climb to the heights of knowledge?

On the one hand, it may be said that inasmuch as it is the great object of education to discipline the mind and strengthen the intellectual faculties, and inasmuch as this can be done only by *tasking* the powers and toughening them by stern exercise, any thing which tends to lighten the toil is just so much lost: it relaxes the muscles instead of hardening them. Work and play are essentially distinct, and should be kept separate.

There is much truth in this; but, if the devices adopted to relieve the tedium of study are such as excite the mind to spontaneous and real activity, instead of providing something else as a substitute for labor; if the benefit of mental exercise may be had without the pain; and if the study which interests the child, and which he pursues with a relish, is that which does him the most good, disciplines him most thoroughly, and fixes itself most permanently in his memory, I see no reason why we should not endeavor to make every department of education as attractive as its nature will admit. I have no idea that it is desirable or possible to convert all study into an amusement; but it is well that every subject should be rendered intelligible to the pupil; that the definitions which he is called to learn should be given in language which conveys some meaning to his mind, instead of making the obscure still darker than before; that the modes of thought which are peculiar to childhood should be regarded in the presentation of principles and truths, and the imagination, which is the faculty that is first developed, should be used in every possible way to stimulate the memory and give life and reality to the abstract. Now I would ask whether the rules in our old-fashioned arithmetics and grammars were generally so expressed that, without other help, the child could attain an intelligible idea of the process or the thing they were intended to illustrate? Take one of the simplest—the definition of a verb, as “a word signifying to be, to do, or to suffer”—what idea did that



convey to our minds, except the vague thought of *suffering* as somehow pertaining to a process which we would have been glad to "decline" in some other than the grammatical way? Who of us ever worked out our sums upon the basis of the terms given in the rule? Until within a few years, the philosophy of arithmetic was a thing unknown in schools; we used to commit the rule to memory, and then work out the examples mechanically upon the basis of the formula which followed it; the principle involved, if we detected it at all, was an inference drawn by our own minds from the examples, and not from the rules. It is, indeed, sometimes necessary to charge the memory with words, which, for a time, must remain unintelligible; but sentences which carry a meaning with them are so much more easily retained, and act upon the mind with so much more of vigor, that it is desirable, whenever it can be done, to brush away the fog and lead the child along the road of knowledge in clear daylight.

(2.) And this suggests another important consideration. Have we not given, in our former modes of education, undue prominence to the cultivation of an arbitrary memory? By this I mean the ability to repeat a string of names, or dates, or words, which are to be recalled by no law of natural association, but simply because they have been, one by one, indented into the mind by interminable repetition. It would be a very useless accomplishment to be able to recite the names of all the kings and queens of England, with no other knowledge of English history; but if these names are so linked to the events of their respective periods, that they are naturally recalled by any allusion to those events, it is then an acquisition not likely to be lost, and of real service. Nearly all the *verbal* knowledge that we acquire at school is soon forgotten, unless it be attached in a natural way to some general outline or system of truth which we carry over with us into actual life, and there find to be of real profit. The time was, for instance, when we could repeat like a green parrot, our young heart swelling with the grandeur of the achievement, the name of every town in every county of our native State; but, it not being our business to collect the returns of votes from the interior, or to take the State census, or to call the roll in the legislature, the acquisition has proved to be of no special use, and so the mind quickly clears itself of the lumber.

Geography, or any other study taught in this artificial way, is very soon forgotten, and it disciplines but one faculty while we are

learning it; but let the name be associated with a thought or a fact, and it daguerreotypes itself upon the mind. Any child can tell you the name of the island where Napoleon died, or of the regions where oranges grow; but the names of places that have no history, and which produce nothing that children are fond of, soon fade from the memory.

And may it not be that the faculty of memory is most effectually cultivated when it is not made the prominent and direct object of education? We remember best that which interests us most, because we give it our closest attention; whatever study, then, is made attractive to the child, he will remember without a conscious effort.

(3.) Another general observation here suggests itself. Our popular education needs to be made more practical, by which I mean that the pupils should be more generally taught how the knowledge which they acquire at school is *to be used* in after life. Many children have the impression that education pertains exclusively to early life and the school-room; that when the hour of their emancipation from this thralldom comes, that is the end of the whole matter—dictionaries, and grammars, and geographies may then be given to the flames. There is a current phrase which tells the whole story: we often hear of youth who have received a "*finished* education."

Now it would aid very much in giving the child an idea of the real and permanent value of what he learns, if, all along the course of study, he were shown its actual bearing upon the emergencies of his future life, and thus made to feel that, at school, he is only laying the foundation of a superstructure to be erected hereafter. Show him that, whatever vocation he may follow, every branch of study which he pursues at school will be to him of some practical service. "What is the use of this hard study?" the boy often murmurs woefully to himself, as, with squared elbows and drooping eyelid, he bends listlessly over his task, and wonders at the cruelty of the man who wrote the awful book which he is doomed to study. You may tell him that he ought to love learning for its own sake, that it is his duty to study whether he can see the use of it or not, and that, finally, if he does not study, he shall be flogged. This last argument he can appreciate, and to save his shoulders he is willing to task his brain; but the effort is not as wholesome as it might be if he were stimulated to labor by some nobler consideration.

(4.) In the next place, I would remark, that there is among us a too general want of thoroughness in teaching the rudiments of

knowledge, the primary principles of science. There is a national tendency *to get on*, or as it is popularly termed, "to go ahead," which infects our schools as well as every thing else, very much to the detriment of all solid acquisition. Children will talk to you of oxides, and latent forces, and synecdoches, and the Gallic war, and Anglo-Saxon idiosyncrasies, and geological stratifications, and Hindoo cosmogonies, till your head aches, when they would spell character with a *k*, and locate the Black Sea in Japan.

Now if the pupil really desires to learn, I can conceive of nothing more dispiriting than for him to find himself hopelessly trying to grapple with the advanced principles of a science, the rudiments of which he has never mastered. I think that some of us can here speak out of a bitter experience. I well remember those dismal hours, when, thirteen summers of life hardly completed, the brain reeled over fifty lines of Homer, allotted as the daily task, while the grammar of the language was itself almost a sealed book. I remember how every Greek idiom would prove a quicksand on which the blindly-guided bark of the mind would founder, and every irregular verb a snag on which it would be impaled. Occasionally there would be emitted from the page a faint phosphorescent light to steer by, and some dim notion of the author's meaning would find its smoky way into the crevices of the intellect; but the Trojan campaign was to us a myth indeed.

But never shall we forget the cloudy season of dismay when, in our college days, we were closeted in the professor's chamber, and put to the work of "calculating an eclipse," while we were still in doleful ignorance of almost every mathematical principle which the process involved. The eclipse was permanent, so far as any help of ours was concerned.

Now these afflictions it will do to smile at after they are over, and we are not ashamed to be candid; but, at the time, they are real enough. And it is not only the temporary misery which is thus occasioned that we have to deplore, but the permanent mischief that is done to the mind. It is, to some extent, irreparable. It interferes with the early and healthy discipline of the intellect, and the injury which is thus wrought can never be fully remedied. The technical knowledge which we fail to acquire in our school-days we may afterwards make up; but the loss of sound mental training and strict discipline cannot be afterwards supplied. There is an injury done to the very texture of the mind—it becomes ine-

lastic, flaccid, inert. It always requires an effort to get it into working order, and then it works spasmodically, fitfully, like an engine whose valves are out of joint. I think that we have here come upon the greatest defect in American education. It is a radical evil; it goes right down to the foundation. See to it that the children committed to your care understand the road over which they profess to have travelled, before you allow them to take another forward step.

So far as *positive knowledge* is concerned, all that can be done at school is simply to put the child upon the right track, so that he may perceive the general direction in which he shall afterwards pursue his inquiries. It does not so much matter *how far* he goes while at school, as *how* he goes; for if he wanders out of the true path at the beginning, it will be hard for him to find the road again.

(5.) Closely connected with what has just been said is the next suggestion that we would offer, and that relates to the importance of training the children in our schools to habits of real, discriminative thought.

The children of the present generation are coming into the arena of life at a period when this habit will be indispensable, in order to their taking their proper part in the great movements of the times, and also in order to their own personal safety. The next fifty years will probably be as eventful in the domain of sentiment and opinion, as the last half century has been in the region of practical science. A mere mechanical training, a perfunctory education in words and dogmas, will not meet the necessities of the approaching future. The time is hastening when men at large will think; and whenever they think at all, they will, as the phrase has it, think for themselves. This being the case, it is evident that all our ancient, accredited opinions must be submitted to a new and a severe ordeal; and men will then be needed, so trained from childhood that they can stand firm in the storm and hold the helm. It is of tremendous moment, that here in New England, more than anywhere else on the face of the globe, we should educate the coming generation in such a way that they may be able calmly and candidly to balance the tendencies of thought and action; to weigh the laws of evidence; to analyze and separate the evil from the good; to see what is worth retaining in the past, and what must be given up in order to retain the good; to hit the golden mean between sound conservatism and inevitable progress, and thus to steer the State and the

Church over the most perilous sea which either has ever yet traversed. All the conditions of a sound education that I have mentioned, have a direct bearing upon this result.

To meet the emergencies of the future, we shall need a strong-bodied race, with brains of a firm texture, with well-braced nerves, with tight-corded muscles, men that can give and take a blow without staggering; therefore it is that we would insist so much upon the judicious physical training of our children.

We want also to develop the *peculiar* powers of every individual, that society may have the benefit of his services in the department for which nature has fitted him; therefore we advise teachers to study and to recognize, in the education of the young, the peculiarities of their individual temperament—always remembering that every human being may be made good for something.

And then we want to cultivate robust minds, symmetrical, well-poised, free from all morbid, excessive, and one-sided protuberances, capable of strong, self-moved, and independent action; competent to stand alone and defy the world, if God and the right demand it, and yet so docile that a little child may lead them, if he only hold them by the bands of truth.

In the great contest which the world is nearing, it is *mind* which will be in demand; it is the power that comes from within which is to rule the nations, and this power it is your business to cultivate. I do not mean, exclusively or primarily, political power, as destined to control the world; just in proportion as the world advances this becomes one of the subordinate powers—it is fast becoming so among us; but it is the influence of *general* thought, developed in the operations of trade, in the inventions of the workshop, in labor-saving contrivances, in scientific agriculture, and in all the myriad processes which form the staple of ordinary life—it is this which is shaping our national destiny. And this is a power which starts from the school-room, and keeps exact pace with the progress of general education.

Our Puritan ancestors established the system of common schools, as the statute tells us, in order that they might foil the devices of that old deceiver Satan, whose art it is to keep the world in ignorance. It was a happy thought, and Satan must have quaked to the centre, on the day when that bill passed to the third reading. For, I take it, there is little danger, here in New England, that our popular education will ever become of that sort which only increases

the power of evil. I do not myself believe that mere secular knowledge has any natural tendency to deprave the public mind. I believe that the more the world knows, the safer it is: I do not believe that man can know too much of any thing, unless indeed he learn it through some sinful experience: I do not believe there is any forbidden ground which the human mind may not lawfully and beneficially explore: I believe that the more thorough, comprehensive, analytical, and scientific the grasp which we can take of any subject, the better; and yet I know that an education which is only secular and scientific, is most lamentably defective. There are parts of man, besides his mental faculties, which need a firm and vigorous culture; there are responsibilities, attaching themselves to man, which draw upon other resources in his nature; and there is an immortality before him, for which the whole of mortal life is only a school of preparation.

It is not your special business to teach religious truth, and your position forbids you to meddle with the dogmas which divide the Christian world: I, for one, am not sorry that it does; but it does come within your province, to infuse into all your teachings those wholesome, elevating, Christ-like influences, which are the very essence of our holy religion. What these are, and how they are to be applied, we all practically agree; as soon as we get earnestly to work, however we may diverge in our theories. If it is in your heart to do your pupils good, as moral as well as intellectual beings, you will find some way to do it. Every child will feel, at least, the reflex influence of your own elevated character. And you will, insensibly, make all knowledge fragrant of divinity. You will create around you a sphere of holiness, within which your children will be attracted. It is the moral atmosphere which a child breathes that mainly affects the healthiness of his soul. It is what he sees and feels, rather than what he hears, which impresses him. It is not the old precept, but the living magnetism of sympathy which makes the chords of his soul vibrate.

And what a thought it is, that the notes you are the first to draw forth from these young hearts, are destined to sound on, ages after you are dead, joining their melody or their discords with the solemn music of eternity!



## IX. LETTERS TO A YOUNG TEACHER.

BY OLIVER F. THAYER,

Late Principal of Chauncy-Hall School, Boston.

TEACHERS, like men of all other vocations, are subject to human infirmities; although, in judging them, this consideration is often overlooked. Hence, the increased importance of that self-control which has already been urged on your attention. In our own days, as well as in those of Goldsmith, it is a melancholy fact that the state of mind in which a teacher enters his school-room, and begins the duties of the day, is but too often the foretoking of the day's occurrences:

"As coming events cast their shadows before."

O, furnish no just cause to have it said of you,

"Well had the boding tremblers learned to trace

The day's disasters in his morning face."

Let your habits be regular. I mean as to your diet, amount of sleep, exercise, &c. Your temper of mind, your feelings, your nervous system, will depend essentially on this; and these will affect your school-room operations. Some persons, with iron constitutions, are able, for a time, to live recklessly, and yet escape the immediate infliction of the legitimate penalties. They are, however, in their cases, only postponed: *their sin will find them out*. But, with few exceptions, school-teachers have not the bodily vigor to withstand the effects of irregularities of living. They either enter on the profession before the muscular system is hardened into maturity, or, under a confinement to which they had not been accustomed, they usually impair the strength they brought to it, and thus quicken into life those infirmities so fatal to success. I am not speaking of habits of a criminal nature; but of those to which worthy, moral young men, from inconsideration, are very apt to become addicted—and this, as they think, in a good cause. For example: they feel a deficiency of knowledge in some science they are required to teach, or they wish to pursue their investigations in some favorite study; and, aware that the quiet hours of night are most favorable to their purpose, they

draw on those hours to such an unreasonable amount, as to leave but a very inadequate portion to meet the claims of the drowsy god; which claims can never be met but in kind—no substitute being, by Nature's unyielding laws, ever admitted. This, then, is the first and great requisition—a liberal amount of sleep, and taken as regularly as practicable. Any degree of knowledge, procured at the sacrifice of needful sleep, is too dearly purchased; especially by him whose days are to be devoted to the instruction and training of the young.

Many persons have tried the experiment of living without sleep, or of showing with how small a portion they could live; but, if they have not died under the trial, they have so impaired their physical powers as to have made the latter part of their lives a burden—full of ails and of nervous annoyances.

It is true, that Napoleon, while in his career of conquest, dashing like a meteor over half of vanquished Europe, lived for months together with but a very few hours of sleep in the twenty-four; and, during a large part of his time, in the saddle. But he was a man of extraordinary vigor of body as well as of mind; possessed an indomitable will, and a fixedness of purpose that knew no aspect but success. Reared in the camp, proof against exposure to the elements and to hardship, he was a model that few could successfully emulate; and, by no means, a suitable one for your fraternity.

Next to sleep, I would speak of food; a liberal supply of which, and that of a nutritious character, I deem indispensable to health and usefulness. I am aware that opinions differ on this point; but experience and observation prove the affirmative of it. The well-considered laws of health, founded upon the structure and natural desires of a human being, testify to it. I say a *liberal* supply; I do not mean a quantity unreasonable in amount or variety. I repudiate the idea of excess. Gluttony may claim as many victims as Intemperance. There is a rational course, which every one who carefully considers the subject may easily ascertain. Let it but be deemed of sufficient importance to secure attention to it, and the evil will be avoided.

On this point, I speak from feeling as well as from conviction. I had, associated with me in school, for eight years, one of the best men, and most successful teachers, that it has been my fortune to know. It was CLEMENT DURGIN; and I am glad of this opportunity of placing his name on record, where it may meet the eyes of his many friends, in connection with a slight tribute to his memory and his worth. It should have been done long ago, by an abler pen: it could not have been performed by a warmer friend.

Mr. Durgin was a self-educated man, and he did the service well. He far more nearly verified the common remark of school-boys, "He knows everything," than many of those who are distinguished by college honors of the first, second, or even third degree. He was a universal student; not of printed books merely, but of the great book of Nature—not sealed to him, but ever open, and read with understanding and perpetual delight. The pebble, the tiny wild-flower, the buzzing insect, the downy moss, the magnificent tree, the singing bird,—all created things, animate and inanimate, were subjects of his contemplation, and furnished him with lessons which enriched his school instructions, while they attuned his mind to harmony and love. Always equable and self-possessed, he seemed to have imbibed the influence of the Source of kindness, the Giver of all wisdom. He was devoted to Natural Science, and to all science, not only from their intrinsic attraction, but from a laudable ambition to *be* something, and to *do* something, in the world. His lectures and addresses, orations and poems,—for he was no mean poet,—evinced knowledge, judgment, patriotism, and taste, of which many young men would have been proud. Patient of labor, and willing to oblige, he was called on to devote many an hour, after his day's school-toil was over, to the preparation of literary performances for lyceums, anniversary occasions, temperance societies, national holidays, &c., to which he always cordially responded, and which he successfully performed.

These proved a fatal temptation to him. Unwilling to present anything not worthy of himself and the occasion, or that should fall below the anticipations of his friends, he bestowed much care and time upon them, and these at the expense of needful rest and bodily exercise, crowning his error with abstinence from suitable food. Having an idea that his intellect was clearer when but little food was in the stomach, he indulged sparingly in eating, and abandoned the use of solid animal food altogether—taking, instead, vegetables, fruit, and pastry, with a little milk. For a short time, he found he could write with more facility and readiness; but nature soon revolted, demanding a supply of nourishment which his newly-assumed diet did not furnish, and which was needed all the more from his accumulated mental labors. This demand was not complied with, or acceded to too late; and he fell into a decline, from which no curative treatment could restore him, and died of rapid consumption a few months after, at the early age of thirty-one years—a victim to too rigid a system of dietetics, and too small an allowance of sleep and bodily exercise. And yet, so far as man could judge, with the capacity of fulfilling the three-score and ten years assigned as the lifetime of a human being.

His ashes repose amid the quiet shades of Mount Auburn, the trustees having accorded a small triangular lot for the purpose; and on the tablet of his monument is inscribed the following epitaph:

Clement Dargin, associate principal of Chauncy-Hall School, Boston. Born, Sept. 29, 1802; died, Sept. 30, 1839: a student and lover of nature, in her wonders, he saw and acknowledged; and through them adored her beneficent Author. His life was a beautiful illustration of his philosophy; his death, of the triumph of his faith.

"His pupils have reared this monument, as an imperfect memorial of their grateful affection and respect."

The loss of a life so valuable to myself, to the profession, and to the community, I have unceasingly mourned; and cannot but cherish the hope, that others, influenced by similar tendencies to his, will take warning from this melancholy example, and be just to the claims of their physical nature, as well as to the aspirations of the nobler part; remembering that man is a complex being, and that to neglect the wants of either of the two principal elements is certain eventually to destroy or impair the power of both.

I have here, incidentally, introduced the subject of exercise; but wish to say a word more upon it, and particularly on the mode of taking it. Exercise derived from swinging dumb-bells in your chamber, or from splitting wood in a cellar, is of but little use. It will quicken the flow of the blood, and, consequently, warm the system; but more than this should be aimed at, that the mind may also have a share in the benefit sought for. Choose a place, then, if you can, where the scenery is attractive, and the objects are such as to make you forget yourself, and the reason of your being abroad. If you are favored with a locality that furnishes a water view, seek that, and you will not want for incidents of interest. If, instead, you have hills, or mountains, or forests, they will furnish you with agreeable subjects for reflection, and tend to call you out of yourself, and away from the petty cares of the school-room, or the gossip of the village—a matter of no inconsiderable importance. That sleep is sweetest and most refreshing, which is taken with the mind in a quiet state, destitute of cares or disturbing thoughts, which generate unquiet dreams: so exercise, enjoyed without the intrusion of distracting thoughts, or of objects foreign to the scene around, is not only most agreeable and recuperative, but that alone which is worth the having.

Exercise should, if possible, be taken in the daytime, in the broad sunlight. Everything that grows needs this. The esculent that sprouts in your collar has no vigor, no greenness, no flavor; it needs the air and the sunshine to give it these. Fishes that are found in the

pools of caves, where the beams of the sun never smile, are destitute of eyesight. It is the light and warmth of the sun that cheer, embellish, and bless. Make it a point, therefore, that your exercise may be truly useful to you, to take it, as here indicated, under circumstances as advantageous as possible; but be sure, at all events, to secure daily a needful amount of it.

Attention to these suggestions will do more than anything else within your ability to present you, each day, to your responsible charge with that preparation so indispensable to complete success.

In the opening chapter of Ernest Linwood, the last work of my lamented and highly-gifted friend, MRS. CAROLINE LEE HENTZ, a description of a school scene, in the early days of the heroine of the book, is given, so true to life, and to the practices in the schools of forty or fifty years back, that I hope I shall be pardoned for transcribing a portion of it. If it be objected that this is a work of fiction, my reply is, that such scenes were formerly common in our schools; and, I grieve to say, are not wholly obsolete at the present day.

"With an incident of my childhood," begins the book, "I will commence the record of my life. It stands out in bold prominence, rugged and bleak, through the haze of memory.

"I was only twelve years old. He might have spoken less harshly. He might have remembered and pitied my youth and sensitiveness, that tall, powerful, hitherto kind man,—my preceptor, and, as I believed, my friend. Listen to what he did say, in the presence of the whole school of boys, as well as girls, assembled on that day to hear the weekly exercises read, written on subjects which the master had given us the previous week.

"One by one, we were called up to the platform, where he sat enthroned in all the majesty of the Olympian King-god. One by one, the manuscripts were read by their youthful authors; the criticisms uttered, which marked them with honor or shame; gliding figures passed each other, going and returning, while a hasty exchange of glances betrayed the flash of triumph, or the gloom of disappointment.

"'Gabriella Lyun!' The name sounded like thunder in my ears. I rose, trembling, blushing, feeling as if every pair of eyes in the hall were burning like red-hot balls on my face. I tried to move, but my feet were glued to the floor.

"'Gabriella Lyun!' The tone was louder, more commanding, and I dared not resist the mandate. The greater fear conquered the less. With a desperate

effort I walked, or rather rushed, up the steps, the paper fluttering in my hand, as if blown upon by a strong wind.

"A little less haste would be more decorous, miss."

"The shadow of a pair of beetling brows rolled darkly over me. Had I stood beneath an overhanging cliff, with the ocean waves dashing at my feet, I could not have felt more awe or dread. A mist settled on my eyes.

"Read!" cried the master, waving his ferula with a commanding gesture,—our time is precious."

"I opened my lips, but no sound issued from my paralyzed tongue. With a feeling of horror, which the intensely diffident can understand, and only they, I turned, and was about to fly to my seat, when a large, strong hand pressed its weight upon my shoulder, and arrested my flight.

"Stay where you are!" exclaimed Mr. Regulus. "Have I not lectured you a hundred times on this preposterous shamefacedness of yours? Am I a Draco with laws written in blood, a tyrant scourging with an iron rod, that you thus shrink and tremble before me? Read, or suffer the penalty due to disobedience and waywardness."

"Thus threatened, I did read,—one stanza. I could not go on, though the scaffold were the doom of my silence.

"What foolery is this? Give it to me!"

"The paper was pulled from my clinging fingers. Clearing his throat with a loud and prolonged hem, then giving a flourish of his ruler on the desk, he read, in a tone of withering derision, the warm breathings of a child's heart and soul, struggling after immortality,—the spirit and trembling utterance of long-cherished, long-imprisoned yearnings.

"Now, when, after years of reflection, I look back on that never-to-be-forgotten moment, I can form a true estimate of the poem subjected to that fiery ordeal, I wonder the paper did not scorch and shrivel up like a burning scroll. It did not deserve ridicule. The thoughts were fresh and glowing, the measure correct, the versification melodious. It was the genuine offspring of a young imagination, urged by the 'strong necessity' of giving utterance to its bright idealities—the sighings of a heart looking beyond its lowly and lonely destiny. Ah! Mr. Regulus, you were cruel then.

"Methinks I see him, hear him now, weighing in the iron scales of criticism every springing, winged idea, cutting and slashing the words till it seemed to me they dropped blood, then glancing from me to the living rows of benches, with such a cold, sarcastic smile!



"Had I received encouragement instead of rebuke, praise instead of ridicule,—had he taken me by the hand and spoken some such kindly words as these:

"This is very well for a little girl like you. Lift up that down-cast face, nor blush and tremble as if detected in a guilty act. You must not spend too much time in the reveries of imagination, for this is a working-day world, my child. Even the birds have to build their nests, and the coral insect is a mighty laborer. The gift of song is sweet, and may be made an instrument of the Creator's glory. The first notes of the lark are feeble, compared to his heaven-high strains. The fainter dawn precedes the risen day."

"O! had he addressed me in indulgent words as these, who knows but that, like burning Sappho, I might have sung as well as loved?"

"I remember very well what the master said, instead of the imagined words I have written.

"Poetry, is it?—or something you meant to be called by that name? Nonsense, child!—folly, moonbeam hallucination! Child, do you know that this is an unpardonable waste of time? Do you remember that opportunities of improvement are given you to enable you hereafter to secure an honorable independence? This accounts for your reveries over the black-board, your indifference to mathematics, that grand and glorious science! Poetry!—ha! ha! I began to think you did not understand the use of capitals,—ha! ha!"

"Did you ever imagine how a tender loaf of bread must feel when cut into slices by the sharpened knife?—how the young bark feels when the iron wedge is driven through it with cleaving force? I think I can, by the experience of that hour. I stood with quivering lip, burning cheek, and panting breast, my eyes riveted on the paper, which he flourished in his left hand, pointing at it with the fore-finger of his right.

"He shall not go on!" said I to myself, exasperation giving me boldness; 'he shall not read what I have written of my mother! I will die sooner! He may insult my poverty, but hers shall be sacred, and her sorrows too!"

"I sprang forward, forgetting everything in the fear of hearing her name associated with derision, and attempted to get possession of the manuscript. A fly might as well attempt to wring the trunk of the elephant.

"Really, little poetess, you are getting bold! I should like to see you try that again! You had better keep quiet!"

"A resolute glance of the keen, black eye,—resolute, yet twinkling

with secret merriment,—and he was about to commence another stanza.

"I jumped up with the leap of the panther. I could not loosen his strong grasp, but I tore the paper from round his fingers, ran down the steps through the rows of desks and benches, without looking to the right or left, and flew, without bonnet or covering, out into the broad sunlight and open air.

"Come back, this moment!"

"The thundering voice of the master rolled after me like a heavy stone, threatening to crush me as it rolled. I bounded on before it, with constantly accelerated speed.

"Go back—never!"

"I said this to myself. I repeated it aloud to the breeze that came coolly and soothingly through the green boughs, to fan the burning cheeks of the fugitive. At length, the dread of pursuit subsiding, I slackened my steps, and cast a furtive glance behind me. The cupola of the academy gleamed white through the oak trees that surrounded it, and above them the glittering vane, fashioned in the form of a giant pen, seemed writing on the azure page of heaven.

"I cast myself, panting, on the turf, and, turning my face downward instead of upward, clasped my hands over it, and the hot tears gushed in scalding streams through my fingers, till the pillow of earth was all wet as with a shower."

In the sequel of this story, the child is forgiven, and the teacher confesses that he had been unkind, pleading that he "had been previously much chafed, and, as is too often the case, the irritation caused by the offences of many," as he said, "burst forth on one, perhaps the most innocent of all."

Here, then, is the lesson of this letter. Strive to adopt such a course of life as will enable you to keep the feelings and passions under control. Avoid all occasions of angry excitement; and endeavor, on entering your school-room, to leave spleen behind, lest it be vented on the innocent, and you yourself suffer the mortification and regret of being unjust to those you are bound to protect, to guide, and love.

The illustrations I have given, both from fact and fiction, unite in enforcing the same idea. They both show the sad consequences of a mistaken course, on the actor and on those interested in or connected with him.

Other lives are yet to be sacrificed under similar impulses, and other teachers to lose their character and their dignity, when they yield the reins to impatient emotion.

## X. HEALTH OF TEACHERS AND PUPILS.

BY CATHARINE E. BEECHER.

[The following communication was addressed by Miss C. E. Beecher to the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF EDUCATION, and read before that body, at its last annual meeting, at Detroit, on the 13th of August. The subject is of the highest practical importance, and we hope to see it discussed thoroughly in the pages of this Journal, from time to time.—Ed.]

Having received the kind assurances of your late President that an article from my pen should be communicated to you, allow me first to express my regret that for years I have been precluded by the *state of my health* from personal attendance at your annual meetings, and chiefly because they are so *interesting* that the excitement would prove injurious.

This very statement introduces the subject to which I ask your attention, and that is, *the Health of Teachers and Pupils in our country*.

In the statements that follow, I shall not attempt to *prove* what I offer. All I shall do will be to *ask your attention*, with the hope that what is offered will at least induce inquiries on your part, and that the prosecution of such inquiries will result in future efficient action. Permit me first to state some results of my own investigations on the subject of national health, which, if not to others, at least to my own mind, are *facts*.

The Anglo-American race in the United States, when developed under the most favorable circumstances, are the *model race*,—the *highest specimen of humanity yet known*. The facts from which this is deduced have been accumulating for years in the hands of a scientific gentleman, and, in due time, will be published. As a specimen, the inhabitants of the mountain districts in Kentucky and Tennessee, where men, women, and children, live in pure air, both night and day, eat simple food, and exercise abundantly,—grow up to a stature and strength which seem prodigious. When Dr. Caldwell, of Kentucky, and two or three others, thus born and reared, went to England and France, as medical students, they were annoyed in the streets by admiring crowds, who deemed their well-developed and towering forms as specimen giants. But, their native states could show multi-

tudes of such. Now, history shows us that it is the best physically developed races that are the *conquering races*, and that degenerated and enfeebled races become the conquered. It was the athletic training of the Greeks that, under Alexander, enabled them to bear such protracted and astonishing fatigue and exertions,—and thus they conquered the world.

It was when the Roman armies were at the height of their physical development that their sturdy cohorts conquered the world. And, when that nation sunk to an effeminate race, though highly cultivated in mind, they become the slaves of the sturdy, well-developed, though ignorant barbarians.

It is a fact that the home-reared Englishman, like *his cattle*, has been constantly an *improving stock*, so that the armors preserved, and once worn by the Norman conquerors, are too small for their improved descendants.

But, in our own land, the reverse is becoming true. General Washington and his staff were not men *picked* for size or strength, and their average weight was *two hundred*, and their physical developments were such as are but rarely seen at this day.

Instead of the physical advance witnessed in our father land, there is evidence of such degeneration,—and mainly too within the last century,—that, should the ratio continue, a few more generations would show the result in a race of *sickly and deformed pigmies*.

As evidence of this deterioration, may be mentioned the universal impression made upon foreigners when they first arrive here, and observe the proportion of *sallow, thin, and unhealthful* countenances, and the directly opposite impression when our countrymen first encounter the *ruddy, healthful* countenances to be met in England.

Returned missionaries, who compare the present generation with the one they left thirty years ago, testify to a great change in respect to the unhealthful appearance of this generation, when compared with the one they left.

Physicians all over the land testify to the increase of physical debility and nervous diseases, that all show the deterioration of the whole physical organism. And, our *blood*, that vital current which nourishes all parts, has become so corrupt that medical men declare that nearly half our population have a *scrofulous taint*.

The reasons for all this are perfectly apparent. *There has been an entire change in the habits of this nation within thirty years.* In the first place, we have changed from *open fire-places*, that secured a constant flow of pure and cool air, to *close stoves*, that allow neither. Even furnace heating is so managed as to give lungs and skin

overheated air, deprived of part of its oxygen, and thus the system is debilitated. Beside this, our houses are made *tighter* than they used to be, so as to exclude the pure air, both by day and night.

Then the abundance of our prosperity, extending to all classes, has resulted in pernicious *habits of diet*. We not only eat, ourselves, but we give to children such quantities of candies, condiments, and confectionery, as never were heard of in former generations. The amount of sugar, molasses, and sweet cooking given to children in this country, is such as is never seen in any other.

Then we eat *hot* food, and *greasy* food, and *high-seasoned* food, and *indigestible* food, and food *hastily masticated*, and food at *irregular hours*,—as was never done by our ancestors. Thus, the air and the food, by which the body is built up, both become causes of debility and disease.

Next comes the increased *stimulation of the brain and nerves* in all possible ways. First, the use of tea, coffee, tobacco, alcohol, and pernicious medical drugs, have increased at a prodigious rate in fifty years. Men, women, and children drink tea and coffee with a frequency and a degree of strength never known among our ancestors. Then the men and boys are stimulating the brain and nerves with the poisonous tobacco as was never done before, while alcohol, though somewhat restrained, still exerts its debilitating influence over multitudes that never pass for hard drinkers.

A meat diet, too, is more stimulating than any other, and no other nation devours such quantities as ours.

To all this physical stimulation is added an amount of intellectual and business excitement for adults, such as was never imagined in former days, while the mental taxation to children in schools is fifty-fold what it was in a former generation.

Fifty years ago, to read, write, and cypher was about all that was expected of the masses, and all that was taught to those not going to college. No daily drilling in crowded and hot school-rooms, in all manner of sciences, with evening lessons at home. No Sunday lessons, no books for children at every turn. Such intellectual stimulus for children was never known in a former generation, while the cares, business, and excitement of all kinds for men and women have increased at an equal ratio. Every thing is going on at high steam pressure. Now, the more the brain is exercised, the greater the need there is for pure air and exercise. This presents another great change in our habits from those of our ancestors.

In former days, children worked with their parents, during the whole period of their growth almost universally. But, in these days,  
No. 6.—[Vol. II, No. 2.]—26.

the greater portion of parents, when they send their children to school, require little or no labor from them.

Now, to balance this great increase of intellectual stimulation, there should be a corresponding increase of *physical* exercise. The nerves of *motion* are the *balance power* to the system, so that exercise must always increase as mental excitement increases. But, this law of our nature has been exactly reversed. Just as all kinds of stimulation have increased, the habits of physical exercise have decreased.

To this has been added frightful abuses in the fashions of female dress, that lead to debility, distortion, and diseases, by which the mothers of the present and coming generation are entailing debility on their offspring.

These are the changes in our habits and customs that are deteriorating the noblest physical race the sun ever looked upon, and which are scattering debility, decay, misery, and sickness all over the land.

These are the practices that are debilitating the constitutions of the teachers and the pupils all over the nation.

Is there any remedy?

It is the object of this article to show that there *is* a remedy; that it is a sure and speedy one; and, that this remedy is in the hands of the *teachers* of this nation, more than of any other class of persons.

What then is to be done? The first thing is to make the *teachers*, the *children*, and the *parents understand the case*. They need not merely to learn the construction and physiology of the human frame. They need this only so far as is needful, in order to comprehend the *laws of health*; but, for the end aimed at, they need no more.

For this purpose, they need a short, simple course of *practical* instruction on the *laws of health*, as the *laws of God*, which they commit *sin in violating as really as when they steal or lie*. And they need to have the consequences of violating these laws urged on their attention as often and as earnestly as are their *religious* duties, and the penalties of another world.

A school-book that is so simple that children, with a little help from teachers, can understand it, and so popular in form that parents will read it at home, this is the first *desideratum*.

Could this be secured, then the teacher, and parents, and pupils would have a constant monitor of their danger and duties. A weekly or tri-weekly lesson in such a book would have the same effect on teachers and pupils in leading to a consideration of and obedience to the laws of health, as is secured by Sunday and weekly sermons and lectures in keeping up an attention to strictly religious duties.

With this should be combined a daily course of *physical training*



in school, in which teachers and pupils should unite. This should be scientific, designed to exercise every muscle of the body, and to be proportioned to the amount of intellectual excitement connected with schools. There is *no other way* in which both the teachers and the children of this nation can be led to a regular and systematic course of exercise.

Any such system never will be practised by individuals alone. The assembling of pupils and scholars gives a daily opportunity to unite social excitement, rythm, and harmony of motion, and a regular and effective course of physical training.

This was the course adopted by the Greeks with such wonderful success as made them at once the strongest, wisest, and most beautiful nation on earth. This is the course which is extensively adopted in European schools, with like beneficial results.

Could such a system of instruction in the laws of health, and such a course of physical training, be *instantly* enforced in all the schools of this nation, there would be an *immediate* remedy for the evils and dangers, so far as the rising generation and their teachers are concerned.

But, this speedy action can not be effected. For the last thirty or forty years, all the energies of parents, children, teachers, school-committees, philanthropists, and legislatures, has been directed to the *intellectual* training of the children. All this pressure has been put on the *brain and nerves*, while the *body* has been entirely neglected, and has staggered and fainted under the pressure.

The American people never do any thing *moderately*. They go by *steam pressure* in *every thing*. They have been working on the brain and nerves of childhood for thirty years or more, till the whole physical condition of our nation is falling to decay.

Now, if we can only start them as energetically in the direction of a *healthy and thorough physical training*, they will be as speedy and efficient in this as in every thing else.

But, how can they be thus moved? The first step must be to convince them of the evils that have resulted from the neglect of physical training in our schools. We need to have investigations made, as to the health of the teachers and pupils all over the land, and then to have the results scattered all over the nation. That such investigations are practicable, if teachers can be induced to lend their aid for the purpose, a few experiments of the writer have proved.

In order to do this, teachers need first to learn to understand the signs and causes of debility and deformity.

For example, when there is a debility of constitution, owing to all

the causes that have been set forth, especially where there has been little pure air and exercise, to invigorate it, then all the muscles of the body become flabby and weak.

The most dangerous result of this is on the *abdominal muscles*, by which the whole interior of the body is held up in its proper form, and firm packing.

When these muscles become debilitated, the whole organism *sinks downward*, enlarging the lower part, while the chest becomes flattened, and the shoulders consequently bent forward.

Thus, also, the erect position of the body, (which is secured, to a great extent, by the close and tight packing of the intestines, and sustained mainly by these abdominal muscles,) begins to fail. The falling of the lower portion makes a hollow and weak feeling in the center of the body, and gradually it bends forward. Thus comes so many flat chests, and crooked backs, and projecting necks.

Again, by neglect of exercise, bad food, and bad air, the whole body is debilitated. Then, in young girls, the tight dresses, and monstrous weight and heat of the clothing around the lower part of the body, with unhealthful positions in bed and in school, produce another deformity called *lateral curvature of the spine*. This is indicated by one shoulder, or one hip, or both, being higher than the other, or by the projection of one shoulder-blade more than the other.

Again, when children breathe the contaminated air of crowded or ill-ventilated school-rooms, or bed-rooms, and when, too, their brains are overtaxed with too much intellectual effort, without counterbalancing exercise, a *headache* is the ordinary index of approaching greater evils.

These three items furnish data for one species of investigation, in which teachers can lend their aid. As a specimen, the writer visited one city school for young ladies, for this purpose, and found that of 148 pupils, who were examined, *three-fourths* had more or less headache; and, *thirty-five*, or nearly one-quarter of the 148, had lateral curvature of the spine in different stages.

In another large country boarding-school, where the pupils were chiefly from the industrial classes, of 109 examined, *fifty* or nearly *one-half* had more or less curvature of the spine. Of the flat chests, round shoulders, and bent bodies, produced by debility, no account was at that time taken, but they abounded on every side.

Now, may it not be practicable, by influence and measures, that shall emanate from your honorable body, to engage the teachers of this country in investigations of this sort, which eventually shall be published to the nation at large? Would not such measures tend,

more than anything else could do, to direct the attention of parents, teachers, and pupils to the evils and dangers that threaten us, as well as to induce measures for the remedy? And, what other body could so appropriately suggest and promote this investigation as the one I have now addressed?

This, then is the first practical point, to which I beg leave to direct your attention, viz.: the institution of some method for ascertaining the state of health of the teachers and children of this nation, with reference to introducing a system of physical training in all the schools of the land.

The second point to which I would ask attention, is the course of instructions contained in a work entitled, *Physiology and Calisthenics for Families and Schools*, the copy-right interest of the author being wholly given to the cause of education. In this work, the desideratum in most school-books in Physiology is aimed at. No more of the science and teachers of physiology are introduced than is needful to make the laws of health appear intelligible and reasonable, while the great aim is to make parents, teachers, and pupils feel that the laws of health are the laws of God, and to lead them to understand and obey them. With this is connected a course of scientific CALISTHENIC TRAINING.

The copy-right of this work is given to a benevolent educational association, and their agents, in five of our chief cities, offer it for sale, so that, when purchased of them, neither publishers or author shall have one cent of the profit; but, the whole goes to promote the interests of physical education, by the endowment of institutions where a teacher shall be sustained by these funds for the express purpose of attending to the health of the pupils. It is this fact which makes it proper to ask your attention to this work when all other authors and publishers must be excluded from your attention.

Another work, entitled *Letters to the People on Health and Happiness*, is also given to the same benevolent association. The first portion of this work is very similar to the other, but the latter portion contains statistics in regard to the destruction of female health and of dangers to the health and morals of young children at school, to which also your attention is sought. The changes in the healthful habits of this nation; and, especially the great increase of intellectual stimulation in the education of girls, have produced results in regard to the women of this nation that are destructive alike to health and to domestic happiness, while young children are exposed to sufferings and temptations that were never known in former days.

There is no class of women who are so great sufferers from want of

pure air and exercise, and over-excitement of the brain, as *female teachers*. There are statistics of female health in the *Letters to the People*, which every teacher and every parent should obtain and deeply ponder. It is the deep conviction of the writer that *four out of five* of the female teachers of this country *lose their health*, in most cases, in less than five years service. The destruction of female health in the chief and only liberal profession open to woman, is one of the most melancholy developments of the day.

As before mentioned, both these works are similar in presenting a short and popular account of the construction of the human body and the laws of health in the first part. It is the *last* portion that, in the one, contains a system of physical training adapted to common schools, and, in the other, the statistics of health, and the dangers to the young above referred to.

Permit me again to call your attention to a third point, with which the preceding is intimately connected, viz.: the benevolent association referred to.

It is now thirty years since I first entered your honorable profession. In my earliest published work, in 1822, was first presented to the public the main idea on which that association rests; and that is, that *woman has a profession*, embracing the three departments of *teaching, health, and domestic economy*, and that society have done her a wrong in withholding from her such advantages in preparing for it, and such honorable and remunerative employment in it as man secures for his most important professions.

Every person must allow that woman's calling is to educate children, to be the nurse of infancy and of the sick, and to superintend the domestic economy of the family state. These are the three departments of woman's profession, as distinct and as important as those of law, medicine, and theology for man.

To sustain and render honorable *their* three professions, men invest large sums in buildings, libraries, and apparatus, and then supply *endowments* to support the highest class of teachers. This secures to men the highest style of education for their professions, while it supports a large class of educators of the *male sex* in honor, and literary ease and success.

Now, it is well-known that the *wrongs of women* have been urged on the attention of the public by an organization of talented and energetic men and women, who command a wide and increasing sympathy. To remedy the wrongs set forth, they urge, "*Give us the professions of men, and access to his institutions for preparation?*"

The American Woman's Educational Association, on the contrary,

surgeon,—Give us institutions that shall prepare us for our own distinctive profession, and give us honorable and remunerative employment in it.

In carrying out the aim of this Association, the attempt is made to secure endowed institutions for women, in which the three departments of woman's profession shall have teachers sustained to give their whole attention to these departments,—just as the other sex support teachers to train young men for law, medicine, and divinity.

The Managers of this Association are some of the most distinguished educators and authoresses in the nation, while gentlemen of high character are incorporated to hold and administer funds under the direction of these ladies, and for the purposes above specified. It is this Association which will receive all the profits that may be made on the works offered to your attention.

Should the work on Physiology prove to be such a work on health as should be introduced into schools, in preference to those that are more scientific and less practical, and should the system of Calisthenics, appended to this Physiology, be generally adopted, two objects would be accomplished: The knowledge and practice that are essential to national health would be extended, and the income thus raised would be secured to those interests of woman and her profession which have been most neglected.

It is to the most liberal, cultivated, and enlightened portion of the community that we must look for aid in this effort to advance the true and best interests of woman, by methods that even the most conservative approve. And, where can we hope to find higher specimens of them than in your honorable body.

And now, as the period approaches in which I am to forsake all active efforts in the profession which I love, and which I have served so long, and as those forebodings of a final parting, that always attend the first crossing of the ocean and an absence, it may be of years, gather around, I seem to be addressing words of parting and bequest to my brethren and sisters, who have labored with me in the same noble and as yet unappreciated profession.

Permit me, then, to resign to your sympathy and care that department of the great field for which I have toiled so long, and now can toil no more. It is the professional interests of my own sex; that department of woman's training that prepares her for her special duties as educator, nurse, and housekeeper, and aims to provide her honorable and remunerative employment in those duties.

My life's history, embracing the establishment of institutions for intellectual training to fit women to teach, the preparation of works

on *Physiology and Health*, to fit her to be a nurse of infancy and the sick, and of works on *Domestic Economy*, to train her to be a good housekeeper; the enterprise to provide honorable employment for her in her profession, so successfully conducted by Gov. Slade; and, finally, the *American Woman's Educational Association*, which embraces all these objects,—has been one systematic and comprehensive effort, that have absorbed all my thoughts, my time, and my income, for more than thirty years.

At the commencement of that career, I was among the earliest pioneers in advancing woman's claim to higher intellectual culture. So far as I knew then, the institution at Hartford, Conn., under my care, was the first to introduce Geometry, and Algebra, and several other branches, never before studied by woman. And, I stimulated my own brain, and the brains of my pupils, without fear or stint, as thousands are now doing; when, suddenly and unwarned, at the end of ten years, my whole nervous fountain gave out, and my physical system was irretrievably ruined. And, doubtless, many of my pupils were equal sufferers from my ignorance. The last twenty years has been one of incessant debility and prostration, while, as I journeyed or visited health establishments all over the land, I discovered the dreadful havoc that a similar course is effecting among teachers and pupils all over the land.

Permit me, then to close, by committing to your sympathy and benediction the great interests which have absorbed my life, and will hold my deepest regards to life's final hour. Permit me to remind you, too, that this cause which we are reviving, is the noblest that can engage the thoughts and efforts of man.

All efforts and plans that terminate in earthly prosperity and enjoyment will fade and pass away as eternal years pass by. But, they who on earth educate even *one child* to become the parent of a family, *educate a race*. The children, the children's children, and so on for generations, will reproduce your labors. And, every one of these educated minds will *live forever*, and will turn back to you as that benefactor whose labors have thus brought forth, not an hundred, but a thousand, thousand fold.

[The foregoing communication was referred to the Standing Committee of the Association, to be assigned by them to a Special Committee, to be reported on at the next annual meeting, at Albany.]



on Physiology and Health, to fit her to be a nurse of infancy and the sick and of works on Domestic Economy, to train her to be a good housekeeper; the enterprises to provide honorable employment for her in her profession so successfully conducted by Gov. Stahls; and, finally, the establishment of a School of Art, to give her the artistic training which has been one systematic and comprehensive effort, that has absorbed, during my time, and my income, for more than thirty years.

## XL. ART.—ITS IMPORTANCE AS A BRANCH OF EDUCATION.\*

BY M. A. DOWNEY.

THE great advance that has taken place in the standard of knowledge in our country is regarded by all interested in the subject of education as marking an important era. In our common schools, especially in large cities, the standard of intellectual training in all studies pursued, is of the highest order; but, to complete the system, so well approved, one branch more, one too long neglected, must be included in the list of studies, and rank in importance with the rest; that is, the art of drawing. On many occasions, when urging the importance of the study, the response has been, "Of what use is it?" By way of answering the question, let us go back to the earliest period of which we have any record and consider the beginning of things, when we find, so far as we are able to learn of the rise and progress of art, that all nations have practised it in some form, that it arose with the wants of a people and kept pace with their national progress and cultivation,—the useful arts giving rise to the ornamental, and the ornamental in turn perfecting the useful,—until the skill of the artist contributed materially to their wealth, both individually and nationally.

Take, for instance, the art of coining money. The earliest money transaction on record is that in which it is related that Abraham weighed to Ephron "four hundred shekels of silver, current money with the merchant," in payment for the field of Machpelah. This payment, doubtless, consisted of mere pieces of silver, without any impress or mark, which passed by weight only, as the term shekel, which eventually became the name of positive coins of gold and silver, from *shakal*, to weigh, fully implies. The denomination for money used in the Book of Job is not, however, *shekel*, but *kerital*, a lamb; as some have thought, from the image of that animal having been stamped on the pieces of the weight of a shekel, as the image of an ox was afterwards placed on the Roman pound weight of copper; the shekel, though at first without mark, being afterward stamped with the symbol of that barter in cattle for which it was the first

\* The principal authorities quoted are Muller's "Ancient Art, and its Remains," and Humphrey's works on coins.

more convenient substitute. There is also a hypothesis that *kesitah*, though translated "a piece of money," in our version, may possibly have been actually a lamb; it is most probable, however, that the term *kesitah*, or lamb, refers to the form of the weight by which the shekel of silver is weighed,—the shekel being, probably, the quantity of silver for which a lamb was exchangeable, and the weight by which it was weighed being made in the form of that animal, to represent the kind of cattle and the number, a single lamb,—which that weight of silver represented, when it superseded direct barter. Both the weight and its value in reference to cattle may have been derived from the Egyptians, as, in Egyptian paintings, we find public functionaries,—for, in Egypt, the state superintended all transactions of the kind,—represented in the act of weighing pieces of silver in the form of ring money, with a weight in the form of a lamb, and noting down the amount on a tablet. In the same painting is a weight in the form of half a lamb, the hind quarters evidently representing half the full weight. Similar weights have been discovered in Assyria by Layard, and the Jewish half *shekel* may have been represented in the same way. The *shekel*, when long afterward issued in the form of a positive coin,\* was of the weight of two Greek *drachmae*, and equal, therefore, to about two shillings and three pence, English,—probably the value of a lamb at that period.

The *shekel* of the age of Jacob appears to have been succeeded by the *shekel ha-kodesh*, of the sanctuary, of which the standard remains in the custody of the priests. It would appear that, as commerce increased from the time of Abraham to that of Micah, who lived, according to the ordinary computations, about 1500 years B. C., that commercial wants had greatly increased, and that the pieces of silver used in trade had augmented in number, and diminished in size; for, a transaction of Micah with his mother has reference to a sum of ONE THOUSAND pieces of silver; and, similar sums of one thousand pieces of silver are mentioned three centuries later, in the transactions of the five lords of the Philistines and Delilah; that they were very small pieces is proved by the statement that the lords brought the money in their hands, probably in sealed bags, each containing a certain weight, as represented in Egyptian paintings. Such was the nature of the monetary transactions of the Jews, and it is quite certain that

\* The types of this coin are, on the obverse, the sacred cup of manna, which Moses was ordered to preserve, in commemoration of the manna miraculously furnished in the wilderness; and, on the reverse, the rod of Aaron, on which three flowers are shown. The inscriptions are in the ancient Samaritan character. And the most common have, on the obverse, the inscription "*Shekel of Israel*," and, on the reverse, "*Jerusalem the Holy*." Some have such inscriptions as, "*Saviour, Prince of Israel*," "*The first year of the Deliverance of Israel*," etc., etc.

they did not adopt the use of positive coins till long after their introduction into other countries. From the time of Abraham, however, to that of Maccabees, about 144 years B. C., they probably had, like other oriental nations, in addition to their more common money, formed of small pieces of silver, which passed by weight, a kind of "jewel-money," consisting of ear-rings and other personal ornaments, adjusted to a certain weight, which might, on occasion, be used as money. Such are the jewels mentioned in Genesis, xxiv, 22, as given by Abraham's servant to Rebekah. "The man took a golden ear-ring, of half a shekel weight, and two bracelets for the hand, of ten shekels weight of gold." They had a kind of ring-money, no doubt similar to that used afterward by the Celtic nations of the West. The gold and silver ring-money of the East appears to have been formed of wire, bent into a circle, but not fastened, so that it could with ease be made into a chain, from which portions could be detached at pleasure. "We have," says Mr. Bonomi, in an interesting memoir, "the actual representation of this currency among the ancient Ethiopians and Egyptians in hieroglyphic sculptures, in which it is not uncommon to see men weighing rings, and a scribe taking note of their number and value, the gold rings being painted yellow, and the silver, white, accompanied by the hieroglyphics of those metals, engraved or painted near them. The hieroglyphic representative of gold being the crucible, and the crucible crossed by a leek, the symbol of white, representing silver." Similar rings are still current in Nubia, and Mr. Bonomi was enabled to procure some specimens from a *Jelab*, or slave merchant, which he has presented to the Numismatic Society. They varied from a sixteenth to three-sixteenths of an inch in thickness, and, in diameter, the longest way, from two and a half to three inches; the rings of silver were larger, and some of them, which had been worn as bracelets, were ingeniously ornamented with engraved work. The paintings above alluded to also represent sealed bags, containing possibly a number of rings, equal to a certain weight, probably a talent, as would appear by the history of the bags of silver given by Naaman to Gehazi, (2 Kings, v, 23,) each of which contained a talent; being, together with a change of raiment, enough for one man to carry. Other kinds of money, of more primitive character, also existed,—such as engraved stones, like the Egyptian scarabaei; pieces of cloth, or slices of salt, of a certain estimated value; which still form the current money of some parts of Northern Africa, doubtless the remnant of patriarchal times and customs.

The ring-money of the East found its way to the West and North at a very early period, where it was still retained long after regular

coins were known and used. That ring-money was still circulated in Britain in the last century before the Christian era, is proved by the testimony of Cæsar; and that it was in use in Ireland still more recently, is proved by the continual discovery of rings of that description. In Sweden and Norway, the use of ring-money continued till a comparatively recent period. In the "Chronicles of the Sea-King of Norway," written in the twelfth century, Harold Hardrada is spoken of as,—

"He whom the ravens watch with care,  
He who the gold rings does not spare;"

and, in another place, the king, Olaf Haroldson, pays the Skald Thormod for his song with a gold ring, weighing half a mark. It appears that there were also rings of a mark, and two marks, and some of much greater dimensions. The difference between this ring-money and that which the Egyptian officials are seen weighing is, that the Egyptian rings were not separately adjusted to any special weight, and, therefore, belong to weighed money, an earlier phase of monetary progress. The ring-money of Britain, and the north-west of Europe, was so far in advance of the Egyptian stage as to have each ring adjusted to a special weight, for which it might pass without weighing; the ring-money becoming thus closely analogous to true coinage. From the abundance of specimens found, this money appears to have been more in use in Ireland than in England. The earliest ring-money found in Ireland appears to belong to a period when each ring might pass by *tale* instead of *weight*, in a manner analogous to that of true coins. The smallest rings were found to weigh exactly one-half pennyweight, which appears to have been the unit by which the larger sizes were graduated, up to twelve ounces, forming a system of ring-money, nearly as perfect as that of the stamped coins. A group of brass rings, looped one within the other, exhibits, perhaps, the method of carrying money of this kind.

The large *torques*, and also armlets worn by the Gauls and other nations, were a kind of "*jewel-money*," being adjusted to a certain weight, to pass as money, if required. Cæsar tells us that the Gauls "use for money gold and iron rings of *certain weight*," and makes a similar statement in relation to Britain. The latter (the iron) have all perished by oxidation, but the former are still found in great numbers. To these may be added rings of silver and also of brass, each of a graduated weight. The earliest ring-money appears to have been always open on one side, being, in fact, pieces of wire of a certain length, bent round. The two ends, which were at first plain, were, in after periods singularly flattened and ornamented,—the transition from

the simple piece of wire to the later decorative forms, being perfectly exhibited in a good series of Irish ring-money.

Some of the larger specimens of this ring-money are very curious and beautiful, and might have been most conveniently carried over one shoulder and under the other. The *torque*, worn around the neck by the Gallic warriors, most frequently of pure gold, and weighing sometimes above four pounds, was of this kind, and was always adjusted to a certain weight as money, in addition to being a personal ornament. One found at Pittingham, in Staffordshire, in the year seven hundred, was of fine gold, and weighed three pounds and two ounces. It was four feet long, very bright and flexible, and could be bent round the arm, the middle, or the neck, and extended again to its former shape, with comparative ease. When worn, it was fastened by a simple hook forming each extremity. Similar ornaments, as bracelets and anklets, are still worn in several parts of British India, which are also of equally fine gold, and, from their extreme ductility, can be wrapped round the wrist, and will retain the position in which they are placed without any fastening. Very magnificent specimens were discovered near St. Quentin, in 1832; they were beautifully wrought, and some weighed over four pounds. They were all without the small hooks at the extremities, their ductility being sufficient to enable the wearer to close them without a fastening. One of these ornaments was found thus closed; but, some antiquarians have thought that they were intended to be worn round the neck, remaining open, in which they differ from the *torque*, which was, in fact, as its name imports, a twisted annula of two or more bars intertwined.

That such ornaments were of very ancient origin, as marks of distinction, insignia of office, *et cetera*, is proved by many allusions of ancient authors, and by passages in the Sacred writings, where one kind is designated *Rabeed*, which literally signifies a twisted chain or wreath, and the Chaldean term *manak* is used to express another similar ornament. After the well-known victory of Manlius over the Gaulish chief, and the capture of his *torque*, which he was allowed to wear, the permission to use such ornaments became common among the Romans, and the "*torquati*" were a conspicuous portion of the Roman army,—forming a kind of legion of honor. The great weight of these *torques* and *manaks*, worn as ornaments, appears extraordinary; but, the examples cited are insignificant compared to the honorary, or rather tributary, *torques* sent to Augustus by the Gauls, which weighed one hundred pounds. Great numbers of these ornaments are mentioned by the Romans as among *barbara spolia*, after their wars with the Gauls and other nations. According to Livy, one

thousand four hundred and seventy-one were taken from the Boii, by Cornelius Scipio, and carried to Rome.

The step from simple barter to that of an inconvenient metallic currency, passing by weight, was an enormous one in the march of civilization; but, the transition from a weighed currency to one formed of positive coins, which were received at once as of a certain value, guaranteed, not by an individual, but by a state, with the national signet stamped upon it to establish and denote that value, was a yet greater step, and formed the basis of the entire after development of the commercial system.

According to Herodotus, the Lydians first coined gold, and the "Parian Chronicle" records that Phidon, of Argos, first caused silver to be coined, in the island of Ægina. The earliest known gold coins were, doubtless, adjusted to some well-known standard, and, therefore, received the name of *stater*, a Greek word signifying standard. This standard appears to have been of a weight corresponding to two drachmæ of silver, and of the value of twenty. Thus the Greeks, when they first established the use of coins as a circulating medium, perhaps two thousand five hundred years ago, laid the foundation of the forms, sizes, and divisions still found in all the currencies of Europe. Some antiquarians attribute an earlier date to the Persian darics of gold and silver; but, the Greek coins alone furnish a gradual development of the art of coining, from the simple stamping of the lump or button of metal on one side only, through all its phases, to that of the perfect coin, exhibiting the full though gradual progress of the art.

The first species of money that was circulated by tale and not by weight, of which we have any account, consisted of spikes, or small obelisks of brass or iron; six of these being as many as the hand could grasp. From the names of this rude money, were derived the words *obolus* and *drachma*, signifying "spike" and "handful," which continued, long after the invention of positive coins, to be the names of two well-known pieces of Greek money, one of which was worth six of the other.

The date of the transition of Greek monetary affairs from pieces that passed by weight, or by the bulk to positive coins of guaranteed individual value, can not be accurately defined; but, as Homer expressly states that an ox was exchanged for a "bar of brass" of certain dimensions, and a woman, who understood several useful arts, was considered of the value of "four oxen," it is clear that a positive

\* A series of ancient inscriptions on marble, now at Oxford, probably inscribed in the second century B. C.



coinage did not exist in Greece in his time; while the allusion in the laws of Lycurgus to both gold and silver coins, proves that they were then in use; and, it is, therefore, between these epochs that we must place the invention of coined money.

The earliest symbols placed on coins referred to the foundation of a state; as, for example, the *phoke*, or seal found on the coins of the Phocians, in reference to the shoal of these little animals, accepted as a good omen, as they followed the fleet during the emigration of that people to Asia Minor. On a Lydian coin, the fore-parts of a bull and lion, form the subject of the seal or signet, by which its weight and worth were guaranteed. This type was probably received from Assyria or Persia, where the triumph of the lion over the bull symbolized the triumph of regal power over domestic enemies. The lion also represented heat, or the sun, and the bull, water, or general humidity, an image afterwards adopted by the Greeks to symbolize a river. Homer describes the river Scamander as roaring like a bull. Emblems of the tutelary deities are next found forming the national type.

Coins, from their earliest commencement, not only furnish representations of the emblems of the religious belief of a people, but also contemporary evidence of the state and progress of art from period to period. Take, for instance, the gold coin of the Phocians, frequently referred to by ancient authors, and evidently of the earliest period, probably the middle of the seventh century before the Christian era. On one side is the rude image of the seal exhibited in bold relief, while the other bears merely a rough indent, the mark of the punch, by means of which the lump of gold was driven into the die. The first advance shown in taste and skill is in the form of the punch mark, which is made more regular. The coins of some of the states were impressed with symbols of their deities, or some object sacred to them; as, Ceres, by the ear of barley; Bacchus, by the bunch of grapes; Diana, by the stag. As art progressed, these objects were formed with more accuracy; and, when represented on the obverse of a coin, in a raised form, they appeared on the reverse as the indented punch mark. As the artist's skill increased, heads of deities were substituted for the rude stones, or *aërolites*, which were first worshipped as symbols of the gods. The heads of deities, with features expressive of their character, were then impressed on coins, while, on the reverse, the emblems take the place of the punch mark. Advancing still farther in art, the full figure of the deity was represented, and on coins are found the full length figures of the demi-gods. The next transition was, adopting the portraits of a sovereign

of princes, with the attributes of some deity. As, for instance, Alexander the Great, with the attributes of Hercules, or of Jupiter Ammon; Lysimachus, represented as a horned Bacchus, *et cetera*. Finally, names and titles superseded attributes. Ptolemy, of Egypt, assumed the title of Soter (Saviour).<sup>2</sup> As this custom became more common, the title, gods, was added to a coin of Ptolemy and Berenice, which was struck by their son, Philadelphus. From this epithet is traced the origin of the expression, "king by divine right."

The Phœnicians, who were the greatest commercial people of antiquity, had a variety of coins, nearly all of which bore a representation of their chief goddess, Astarte, on the reverse, while the obverse presented the name of the reigning ruler, the date, *et cetera*. Astarte, or Astaroth, was the moon worshipped in the human form, and was to the Tyrians, Sidonians, and other commercial cities of the East, what Diana and Juno were to the Greeks. Her sacrificial rites were not bloody, but consisted in offerings of wines, breads, and perfumes. She was styled "Queen of Heaven," and hence we see the force of the meaning of the prophet Jeremih, when, lamenting over the idolatry of the Hebrews, he charged them with making cakes for the queen of Heaven.

The type first adopted on coins, was the one constantly adhered to as the most suitable. The so-called ideal representations of the Greek gods are not types, and do not preclude the freedom of the artist, but rather furnish the strongest impulse to new and genial, as well as ever recurring inventions.

The Roman series of coins, which rose as it were, on the ruins of that of Greece, from the number and variety of undoubted portraits recorded on it, is considered of the highest historical importance and interest. Addison calls the Roman coinage a sort of "State Gazette," on which all the truly great events of the empire were periodically published; and when we find such announcements as *Egypta Capta*, on coins of Augustus, struck on the conquest of Egypt, *Judea Capta* on those of Vespasian, issued when Judea was finally subjected to the Roman yoke; or, "*Rex parthis datus*" on the coins of Trajan, when the Roman Emperor gave a king to the Parthians, we must allow the aptness of the term. In addition to the vivid illustrations of history and general civilization which they convey, the coins of Greece and Rome form in themselves a complete history of art. Some coins of the greatest age of Grecian splendor, present works unsurpassed in beauty by sculpture on a larger scale. On the Roman series may be traced the gradual decline of art with the decay of the empire.

<sup>2</sup> According to Cicero, this word is so significant that it cannot be expressed in one Latin word, and should be read, Saviour God.

The great and varied interest, and the general attractiveness of the study of ancient coins began to be perceived with the revival of learning in the fifteenth century, and small collections were made at this early period; the first on record being that of the celebrated Petrarch, who eventually presented it, with this memorable letter, to the Emperor of Germany. We next find Alphonso, king of Naples, collecting ancient coins from all parts of Italy, which he constantly carried about with him in a richly carved casket of ivory. The great Cosmo de Medici perceived the interest of these beautiful monuments of antiquity, and commenced a cabinet which formed the nucleus of the present magnificent Florentine collection. Mathias Corvinus, king of Hungary, also formed a cabinet of medals about that period, Francis the First, of France, among his other acts of munificence in the patronage of art, laid the foundation of the great French collection, now the finest in Europe.

The importance of the study of coins in a national point of view is now fully understood. The Russian collection, though of comparatively modern formation, already contains some thousands of interesting coins. The Madrid collection, contains 2,672 coins of gold, 30,692 of silver, and 51,186 of copper. That of Vienna is much more extensive, containing 24,112 Greek coins of all metals, 30,902 Roman, and 98,000 of the middle ages. But that of Paris surpasses all others in numbers, and in more than one class; both the rarity and beauty of its specimens are unrivalled.

Ancient medals were in the form of coins, and were struck, either to transmit the portrait of some distinguished person, or to commemorate some great event. The reverses of medals present full-length figures of deities with their attributes, also games, public buildings, and ceremonies of various kinds. Some reverses bear the portrait of the queen, and again, that of the son or daughter of the prince who appears on the obverse.

Medallions were of a larger size, and are supposed to have been struck by different Emperors for their friends, or for foreign princes and ambassadors. The Romans generally stamped the subjects of them upon their ordinary coins. To the figures of the deities with their attributes they added the name. The Greek medallists, with purer taste, gave the symbols only.

Great care was bestowed on the engraving of coin-dies, often in districts and towns not otherwise known as the seats of schools of art; yet during the first half of the third period, from the 80th Olympiad to the 111th, the designs of devices on coins, although often grandly conceived, and full of character, still retained, for the most part, a

certain hardness. In the second half, on the contrary, the highest point that has ever been reached in beauty of expression was then attained, particularly in the cities of Sicily. At the same time, there was great awkwardness in the mechanical process of stamping. The art, however, was much advanced by the prevalent custom of multiplying the already extremely numerous types of coins, by the commemoration of victories in the sacred games, deliverance from dangers by the help of the gods, and other events that admitted of mythological representation, and thus we often find in the smallest compass, a plastic scene replete with ingenious designs and allusions.

The degeneracy of art in the Macedonian dominions, is manifested more clearly in the coins than in any thing else, and at the same time in the most certain and authentic manner. In the first half of the third period, they display, generally, excellent design and execution, such as those of Alexander himself and others, especially those struck in Sicily which cannot be surpassed in handling, and yet are far inferior to other works in power and grandeur. The Macedonian coins from Antigonus Gonatus, and the Syrian coins from Antiochus II., downward are of much less value. Even the Sicilian coins of Hiero II., and his family are inferior to the earlier ones. In like manner, among the coins of the Ptolemics, which are not generally of high excellence, the oldest coins are distinguished as the best. Among the coins of the Grecian States, after the time of Alexander, many will be found remarkable for easy and powerful handling, yet none to which can be awarded the praise of genuine perfection in art.

The art of cutting dies notwithstanding the limited fame which these artists enjoyed, even in the chief places where the art was cultivated, was carried by the Greeks to the highest perfection, so that nothing remained to the Romans but to improve the process of stamping. Although the casting of coins was not confined to ancient Italy, stamping was the usual process in Greece and later Rome, and yet the blanks, that is the pieces of metal destined for impression, were cast in molds, commonly of a lenticular form, that they might be the better able to bear the stamp, which was often very deeply engraved. The dies were made of hardened brass, down to the time of Constantine, when the use of steel was adopted. Medals, properly so called, which did not circulate as money, were not continued from the Greek period of art; but the large gold pieces of the Constantian period may be regarded as belonging to that class.

## XII. INSTRUCTION IN DRAWING IN SCHOOLS OF ART AND DESIGN.

### REPORT OF A FRENCH COMMISSION.

The following article was translated for the Dublin Journal of Industrial Progress from the *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*. (2d Sec. No. 5.) It is part of a Report, addressed to the Minister of Public Instruction in France, by a Commission consisting of Messrs. FELIX RAVAISSON, (Inspector General of Superior Instruction,) BRONGNIART, INGRES, PIGOR, SIMART, BELLOC, EUGENE DELACROIX, HIPPOLYTE FLANDRIN, MEISSONIER, JOYFROY, DUP, and PILLET: The Reporter was M. Ravaisson.

All the Arts are learned, more or less, by practice. *Fabricando fit faber*, it has been said, and we may likewise say that Drawing is learned by Drawing.

But if it is certain that like all the arts that of Drawing cannot be learned without practice, does practice alone suffice, without any order or any kind of rule? It has been so pretended in our times, and so also even in the time of LEONARDO VINCI: "Some believe," says he, "that without other science, the practice of copying natural objects alone suffices." But he adds: "There is nothing which deceives us more than trusting in our own judgment without other reason, as experience ever proves, the enigma of alchemists, neomancers, and other simple (self-confident) spirits."

And in fact, how many mistakes of every kind does not practice without any rule, or blind routine, produce, which one must afterwards lose much time to set right? When we walk without guide through an unknown country, on the simple faith of a judgment yet unformed, and directed by nothing, how many chances are there of our losing our way! and, what is worse, having had for a long time no means of perceiving in what we are mistaken, how many chances of our contracting, from a false manner of seeing and judging, some irremediable habit! If, then, it is true that Art cannot be learned without practice, it is also true that some Theory is necessary to Practice to direct it.

"Those who are captivated by mere practice without any science, are like navigators who go to sea without rudder or compass, and who never know with certainty where they are going. Practice ought ever to be built on sound theory; without this, nothing is well done, no more in painting than in any other profession."

It is evident, in the first place, that among all the objects which can be studied, there are some the study of which is more profitable; at least, one of the first rules by which practice ought to be governed, is that which will teach it to what objects it should by preference address itself.

Of all that Nature produces or Art has ever invented, the human figure is that which it is most important to understand well and to know how best to represent, because in Art as in Nature it is to man that the first and principal place appertains. Made, among all bodies, to serve for the habitation and instrument of the Soul, to obey its will and to express its affections, the Human Body is of all that which, in its movements, in its forms, in all their proportions, presents at once the greatest variety and the greatest unity; it is that whose different types are the most strongly marked with a special character, a distinct individuality that, in fine, which is susceptible of the greatest Beauty. From this it results that errors in the representation of the human figure are more sensible than in that of any other figure, and that he that commits them recognizes them himself more easily. From hence it follows that to teach how in all things to judge of their proportions

absolutely, that is to say, as we have said, to Draw, there is nothing better than to proceed, as the first object of study and imitation, the human figure. It is a point upon which scarcely any difference of opinion exists.

But because the human figure is the most complicated both in its movements and in its forms, it follows also that it is of all figures the most difficult to see well and to represent well. In living nature, where to the variety of forms is added that of colors, and the mobility inseparable from life, the complexity is such that it is manifestly impossible for a beginner not to lose himself in it. Hence the necessity upon which all the world, or all but all, is again unanimous, of a simplification at first, of that which consists in giving as a model not nature itself, but an image of nature, without motion and without color; that is what is ordinarily called a *bosse* [a statue, cast, or figure in full relief].

But does not such a figure, if it be an entire figure, offer still a whole composed of too many different elements, whose relations it is impossible for an inexperienced eye to seize and reproduce? Upon this point, again, upon the impossibility of giving to the beginner an entire figure for model, no difference of opinion.

Now, there is one part of the human figure in which more even than in the remainder, the proportions are skillful and delicate, which more than all the rest possesses individuality of character, which, in fine, is susceptible of a beauty more exquisite than all the rest, and which beside forms in itself in some sort a whole, already sufficiently complicated and difficult to understand. This part is the Head.

The least simplification which it would be necessary to make, the least restriction to the hazardous essays of a blind routine, would be to give at first as models only round casts (*bosses*), and among these only those of simple Heads.

Must we not go yet farther? Must we not give beginners for their first models, instead of round casts, prints, drawings, or photographs, where the visible appearances are more easily distinguished from the real proportions which they express, where the lights and shades are more simple and more easily understood; must we not also, instead of entire heads, make them imitate at first only the parts of which the head is composed? It is this opinion which in all times has obtained greatest credit; it is this which in all times has been generally practiced, as witness the writings of CENNINO CENNINI,\* LEONARDO DA VINCI,† BENVENUTO CELLINI,‡ VARRI,§ LOMBARDO,|| ARMENINI,¶ DE PILES,\*\* &c., as prove the collections of the *Principles of Drawing* which have been published at different epochs.†† In fine, it is this which is practiced still in our own times in the greater part of the schools, one may even say in almost all.

From all time then this principle has been generally held, as true; that it is only after having learned what is easy and simple that what is difficult and complex should be attempted. On this principle the student imitates drawn or engraved figures before those in relief; the parts of a figure before the entire. Moreover, he applies himself to imitate exactly the form of whatever subject he studies, and consequently to represent with care the lights and shades which render it visible, and which determine the relative inclinations, the melting away or the relief of the surfaces.

It is complained that by this method, proceeding step by step from the imitation of the several parts of the head, after prints, too much time is required to come to the imitation of heads and entire figures from the round; it is also complained that too much time again is spent in making each drawing in the imitation of the lights, of the shadows, of the half-tints; that amidst the minutiae of this labor a vicious habit is contracted of pre-occupying one's self to excess with details, a habit which no longer allows one to comprehend the effect of the whole. It has been said, in short, that the result which we ought to propose to ourselves is that of

\* *Trattato della pittura*, (Rome, 1821.) See, c. 8.

† *Della Pittura*, p. 57.

‡ *Discorso sopra i principi et modo d'imparare l'arte del disegno* (opere, Milano, 1811, 8vo; volume III.)

§ *Introduzione alle tre arti di disegno*, c. 15. || *Vita di Michelangelo Buonarroti*, p. 129.

¶ *Trattato della Pittura*.

\*\* *Precepti della Pittura*, c. 3.

†† *Elements de peinture pratique*, p. l. c. 1.

†† See especially those engraved after the designs of Palma the younger, of Prospero Fontana, of Annibal Carracci, of Guercino, &c.



leading the student, in the least possible time, to reproduce the effect of the whole and the general aspect of things, and that after several years even employed in this patient study, beginning with the elements of the human figure, one can surely hope to reach such a result.

Hence the different systems in which drawing is commenced by the imitation of heads in full relief.

In the boldest of these systems such models are given to the student for imitation from the very first, and without assistance. This is what JACOTOT, the author of what is called the "Universal" system, proposed as an application of his general views toward the simplification of instruction. Experience has proved, as it was easy to foresee, that a head in full relief,—that of the Apollo Belvedere, for example,—proposed as a first model to all beginners, offers them, by its multiplied proportions, complicated by so many mysterious effects of perspective, and light and shade, absolutely insurmountable difficulties; they either lose courage entirely, or else passing on to another work, in spite of the gravest errors, which they are utterly unable to correct, they take up forever the ruinous habit of doing bad work and remaining content with it.

In the system proposed by M. ALEXANDER DUBUIS, more than twenty years ago, a system which has gained considerable support, and which even now has its partisans, the first model proposed for imitation is still a head in full relief, but it is a head simplified.

By this means M. DUBUIS has hoped to preserve the advantages which JACOTOT promised himself by his plan, and to get rid of its inconveniences.

Accordingly, M. DUBUIS gives beginners for their first model a bust which presents only very general masses or features; after this bust, another, which offers some additional indications of the head; then a third in which the details are still more numerous and more decided; and lastly, a fourth, which completes the series, and which alone is all but according to nature. These four busts (of which each is, besides, placed in three different positions: the head set straight in the first, raised in the second, but down in the third,) these four busts thus present four successive states of the same figure, from the roughest sketch up to the completion of it; they are the degrees by which the author of the system proposes to conduct the student, from the general indication of the whole to complete representation, comprising all the detail of the parts.

So that, says M. DUBUIS, while commencing Drawing by the entire Head, by a whole, as in M. JACOTOT's method, and in all the methods by which it has been sought to abridge the study of Drawing, we commence, however, by a simple and easy object, and only pass in succession, as in the ordinary method, though following indeed an inverse path, from the simple to the complex and from the easy to the difficult. Besides, thinks he again, to proceed thus is to proceed in conformity with the great principle, that general effect should command the details, and that, accordingly, every work of art should commence by the general effect of the whole.

In truth, if the different parts may be called simple in relation to a quality, and it is in this sense that the limbs are simple in relation to the body, we may from another point of view consider as simple, in relation to an object completely determined, a less determined state or condition of that same object, and one which consequently presents less complexity; and it is in this sense that the rough sketch of a figure, in which as yet the individual features find no place, is more simple than the finished figure. Now this previous and simpler state is often called, elliptically, the whole; elliptically, for it is not the whole with all the parts composing it once realized, and which themselves in reality form a whole; it is the whole without its parts, the general effect abstracted from the details, or, if you please, the general effect comprehending the details in a manner purely virtual and ideal.

But the character of this whole abstracted from its parts is: to be in relation to the real whole of which it is the sketch, still undetermined, indefinite. Hence it follows that, for him who does not know the details which the abstract whole in its general effect comprehends but virtually, this whole has but an undetermined meaning; and an undetermined meaning is not one at all. To give a beginner

\* De l'enseignement du Dessin sous le point de vue industriel, par Dupuis (Paris, 1866, 8vo.) p. 29.

such a whole is then to propose to him a model which for him is meaningless. Such a model has, consequently, nothing in it proper to teach the imitator of it exactness and precision, and—the habit, once engendered at starting of doing nothing save roughly, and then only almost doing it—when the student gradually arrives at details he will be able but roughly and only almost to comprehend and represent them.

Doubtless whatever one desires to do, it is the general effect, it is the whole, the whole without the details of the parts, which must first be established; for it is this whole, in which the parts will successively take their proper places, which must first be correct, and the happiest details cannot compensate for errors in it; this is what LEONARDO DA VINCI incessantly advises Artists; not to lose sight of

it is, in fine, a truth with which the Greeks particularly showed themselves profoundly penetrated; for if there is one quality above all, by which their works most surpass those of the moderns, it is in the understanding of the general effect. But it is not less true that this general effect of the whole without parts, by which everything to be done must necessarily be commenced, has no meaning, save by relation to the complete whole, of which it is the preparation and first stage. For the artist who indicates it and who knows what he must add to it, this first general effect (*ensemble*) has then a definite sense, and from this it follows inevitably that the sketches of a master, even the most summary, instead of being confined to a generality systematically shapeless, always here and there let out the determinate, precise, and well defined ideas of which they are the design. But those indications, themselves, to an inexperienced eye, are but enigmas. The sketch, in fact, has a meaning only for its author, and for those whom experience and science have put into a condition to share his thought, and to anticipate with him its realization. For a beginner it has no meaning, or only a vague and confused one. To propose, it to him for imitation at starting is then, once more, to give him for his first lesson to content himself with an ill-defined meaning: it is to make him contract the habit of doing so; it is to deprive him, by such a habit, of the desire, and soon even of the power, to reach as to any object whatever the definite and determined, that is, the reality. From which it is evident, that while in everything it is by a sketch that what is desired to be done must be commenced, it by no means follows, as M. Dubuis has thought, that the first models should be sketches. Far from this, to habituate one's-self from the start to imitate objects systematically undecided and shapeless is to render one's-self incapable of ever understanding the real forms, and therefore of ever being able to make a simple sketch, such at least as those which come from the hand of a master, and in which, little as there may be, or be seen in them, at least what ought to be is already distinguishable.

However, it must be agreed that the models proposed by M. Dubuis do not present that appearance of vagueness, which is, in general, the character of mere sketches; this arises from their being fashioned out by planes and by angles. The first of these models presents but the great masses thus indicated; the second only differs from the first, and the third from the second, by the planes and angles being more numerous; and even the last, which approaches nearest to the forms of nature, still retains much of this same character. In this above all, these models differ essentially from the works of a master's hand, and they resemble more closely the successive stages by which the workman or stonecutter mechanically nears by little and little the shape of the marble or the model, which the artist has charged him to reproduce.

The object of the constant reflection of the Masters, the end to which they ever look, being, as we have said, the expression of the character or soul of forms, their constant practice has been to indicate it from the very first, even in the lightest and most fugitive sketch, and accordingly, in sketching the figure of a living being, and above all, the human figure, from the very first to make felt the nature of those sinuous curves or *serpentine*s, (as Leonardo and Michel Angelo called them,) which are its peculiar characteristics, and which reveal its spirit. This is what we see in the drawings of Titian, and of Correggio, as well as those of Raffaele, of Leonardo da Vinci, of Fra Bartolommeo, and of Michel Angelo, as well as in the sketches in wax, and in clay, and even in marble, which remain to us of this great artist.

An entirely different manner has begun to reign in certain schools in the 17th and 18th centuries; according to the true sentiment of the spirit of forms becomes more weak; it is that which consists in replacing curved lines and surfaces by straight lines and planes; confined at first to the detail of figures, to the smallest parts composing them, this process has been more and more applied to the larger parts, and finally, in our own time, among many draughtsmen and painters, it has extended itself to every branch of Drawing.

The models proposed by M. Dubuis present a systematic application of this process; one of which beginners who copy from them must necessarily contract the habit of.

Now, in the first place, habituated to see everything under one sole aspect, the eye must by little and little become incapable of understanding the infinite variety which nature offers us; it must become incapable, above all, of understanding, and of representing those subtle and winding forms which are the distinguishing characteristics of human nature, those forms which Michael Angelo compared to the waving motion of a flame. In the second place, the particular effect of this process which consists in expressing every thing, or almost every thing by planes, is to disguise under the precision of surfaces so regular, the actual indetermination of forms, and so to give to the unskillfulness of him who does not know how to distinguish, and to reproduce the true character, a false air of knowledge. Thus the inconveniences of this method are aggravated.

If by adopting the habit of copying simple sketches, such as (once more) the sketches of the Masters, we can express nothing but in the rough, and only half-express it even so, if in consequence we do not reach the truth at all, we are in this properly speaking, engaged in the false, and the very indetermination at which we stop short, might warn us that to reach our end, a part of the road remains to be traversed. But if we adopt in addition, a manner of work which gives to every thing we do a semblance of precision and perfect definiteness, we conceal from ourselves our weakness or our ignorance, and we set a bound to our own progress almost impossible to pass over.

M. Dubuis' method was conceived for the purpose of teaching the art of Drawing to the working classes; to those classes who have need of an elementary knowledge of Drawing, in the exercise of a multitude of professions, more or less mechanical, and who can devote but little time to acquire it; and it seems sufficiently appropriate for this purpose. If, in fact, it follows from what we have said, that this method can not lead very far, on the other hand, it is undeniable that in making the student begin by the imitation of simple wholes, it is, perhaps, fitted more rapidly than any other, to put him in a condition to seize the general effects of proportions, and to put the principal masses almost in their proper places; and if it is not enough for Art, it is enough for what of knowledge of Drawing most trades require.

This method, once more, may then answer sufficiently well for the instructions of the artisans for whom it has been designed, but that is no reason why it should be introduced, as some have desired it should, from these popular schools where it is said to have done good service, into the schools of a superior class, and above all into the *Lycées* (Colleges, or Collegiate Schools).

However, if it be a method by which we can indeed acquire more rapidly than by another, a certain knowledge of Drawing, however limited, perhaps we should be tempted to believe, that it ought to be adopted in preference by all our schools, except those especially destined for the formation of Artists. Every where, some will perhaps say, it is for the greatest number, and especially for them, that we should chiefly be concerned; now the greatest number has need of knowledge of Drawing, only of a very elementary kind, so far as it is required, not for the practice of the Art, but for the different industrial pursuits with which Drawing has somewhat to do. What is of the greatest importance is this, that those very persons who can devote but few years to general study, and to that of Drawing in particular, should be able in those few years to learn as much of it as is necessary for representing with some accuracy the situations and dimensions of things; and if it be a method by whose employment such a result can be reached, even if it cannot serve, nay, even if to a certain point it interposes an obstacle to further progress, this imperfect but expeditious method must still be preferred.

We cannot share in such a view.

Even admitting what is far from being incontestable, that for the practice of the different branches of industry, there is never any need of drawing with the same precision, and the same delicacy, with which artists must know how to work, it is still one of the first interests of industry, and consequently of the great number who are engaged in it, that art should not decline in the hands of those at least who practice Art. It is from Art that all the branches of industry, which have any relations with it, receive their inspirations. It is Art which supplies them with the types which they multiply, in accommodating them to our different wants, or to our different fancies. All are constantly occupied in appropriating to every thing that surrounds us, the forms with which the imagination is captivated, and of which that Art which reigns at each epoch is the source; all profit by the power of seduction which Art exercises, and, by the favor which attaches itself to every thing that bears its mark.

When a great master appears, and comes to show all things under an aspect till then unknown, for such is the privilege of genius; all that is subject to the power of man, must put on those proportions, those new harmonies which he is come to reveal. Thus, to spread and to apply its thought in every form, the ancient art is transformed and regenerated, and new arts take birth. And to this immense work come together, yet from afar off, to furnish its materials, even the very branches of industry, which seem the most foreign to the Art of Drawing. Who can say what even the most mechanical professions owe to the genius of a Raffaele; not only the art of Marc Antonio, not alone that of the potters of Faenza, of Gubbio, of Pesaro, and of Urbino, not alone the fabrics of the tapestry works of Flanders, and the enamels of Limoges, which have reproduced his creations under so many forms, but all the industries of his age, and of the ages which followed him; how many men have lived on the fruits of his thoughts, and of what riches of every kind it has been the source? Who can calculate what for three thousand years, one half the universe owes to that Greek Art from which even still, though modified by so many different influences, not only the forms of all our public works, but those even of our vessels and common utensils are derived?

And as for the industry of France in particular, if it be by so many titles in the first rank among the industries of Europe, to what is this due, if not to this, that the first rank already for a long time belongs to our painters and our sculptors, and that in Art, no more than in Literature, no nation can dispute it with her?

What worse service then would it be possible to render to the greater number in every country, but above all in ours of France, than to put every where in force methods of instruction calculated to set bounds, even to the measure of mediocrity, to the development of talent, and by an ignorant zeal for the crowd, to arrest the flight of those men of rare genius, (*génies d'élite*) which it ever conceals in its bosom, and whom Providence destined to be its benefactors?

Will it be said, that rare Genius knows how to burst its way, whatever difficulty it encounters, and that it is useless to take special care of it? Examples abound in history, and in the history of art in particular, of men of genius happily endowed, whose career has been falsified, and destiny destroyed by a bad education.

In the second place, and supposing even that one should not occupy one's self with this small number, with this *élite* which will practice Art with success, and spread its benefits over the crowd, nor even with those already more numerous, to whom it would be useful, in the career which they have to pass through, to possess the knowledge of Drawing to a somewhat higher degree, it is certainly important that among the greatest possible number taste should be healthy and good. And so, if the state of Art, and consequently of all the industries which depend on Art, depends upon the genius and education of artists, it depends also, in very great part, on the judgment of the public, which, by its approbation or disapprobation, may sustain the artists in such and such a course, or turn them from it. Now, as PAUL VERONESE said, "those alone can form a good judgment upon matters of Art, who have been well instructed in Art." Accordingly, since taste is the just appreciation of the beautiful, since between the beautiful, the true, and the good, there is a close connection, and so to speak, an intimate solidarity, what interest is more general, than that to direct instruction in Drawing,

in such a manner as to give as much as possible to all those who take part in it, a just and delicate taste, a sure discernment of beauty, and that is true for all the schools; for how much stronger a reason is it not true for the schools of secondary education, and where those are educated, who by their lights, as well as by the place which they will occupy in our society, are destined to exert the most powerful influence upon the spirit of their time? For these different reasons, we cannot recommend the establishment in our *Lycées* of any of those expeditious methods which lead, however ingenious they may be, but to an inexact and erroneous appreciation of form, and their character. The only method which we can propose for the approbation of the Minister, must be that method which will lead, though at the price of a little more time and trouble, to the end of Instruction in Drawing, such as we have been able to define it, after the great Masters of Art; the possession of that good judgment of the eye, by which men appreciate proportions correctly, and understand their spirit and beauty.

We have seen that the human head is an object too complex to serve for a first model for the student, that in seeking from the start to imitate its form, the beginner can but contract a habit of error; we have seen also, that to propose for a first model, a whole in an abstract form, and without parts, is again to itself, though in another fashion, but error and confusion. Hence, we are of necessity brought back to the method which has almost always prevailed, and which confirms the authority of all the masters of Art, that which only allows the whole to be studied, after a profound study of its parts.

"The night," says *Leonardo da Vinci*, "has an action of the quickest; and embraces in one moment an infinity of forms, nevertheless it only comprehends one thing at a time. Let us suppose, reader, that you bestow one rapid glance on all this written page, you will judge in an instant, that it is full of different letters; but you will not know in so short a space of time, what letters they are, nor what they mean; you will be obliged then to go over them word by word, line by line, in order to comprehend those letters. Or again, if you wish to reach the top of a building, you must mount up step by step; without which it is impossible for you to reach the top. And so it is, I say to you, that Nature regards this Art of Drawing. If you wish to have the true knowledge of the forms of things, you will commence by their parts, and you will not pass on to the second, before you have the first well in your memory and in your practice. And if you do otherwise, you will lose your time, or at least, you will prolong your study. I repeat to you once again, learn accuracy before rapidity."

But it is said, on the other hand, if we cannot begin with the Whole, why not descend to details still smaller than those by which one generally commences, why not descend to the fingers, to the nails themselves.

It is, because, in recommending not to begin with the entire of a visible natural object, nor even by a whole, such as the human head, too complicated still, although this too is but a fragment of a whole, nevertheless for an inexperienced eye, in order to satisfy the two principles equally certain as they are that we can not commence with a very complicated whole, and that only a whole can make itself understood, reason requires that we should commence with parts, which, though parts, yet form wholes in a sense in themselves, and are in consequence intelligible objects. We will stop then, as men have always done, at those fragments which have to a certain extent a special destination, a special character, a distinct individuality, such are the eye, the ear, the mouth, the head, &c. Sufficiently simple not to surpass the comprehension of a beginner, every such part is already a whole in itself, in right of this quality, and like a whole, each such part may be understood by itself alone. As parts of a Whole more complicated, they cannot, it is true, be understood without that whole. It is then by arriving at that Whole in which they act one with another, and where they harmonize together, that—after having studied each part separately—they can all be understood.

After having taken as a base of operations, as we do in every science, that which is less intelligible in itself but more accessible, it is in the last place, according to the order which befits our weakness, and which is recommended by



wisdom, that we raise ourselves to the culminating point of complete science, which is like an elevated pinnacle, whence we can embrace all, and understand all.

Lastly, to leave from the very start, only so much obscurity around the meaning of the several parts of the human figure, as the time is not yet come to clear away, we should not neglect to make beginners see from the first in a general way, the relations they bear to the whole, and the position which belongs to them. It is also thus, that in every science a general and preliminary exposition precedes instruction in detail, and prepares the way for that last and philosophical exposition, in which the details reunited and arranged in the whole, will receive their last and full explanation.

Such is then the order which theory prescribes to the practical study of Drawing. But the determination of this order, is this the only share which theory should have in instruction? And accordingly, the order of practical study once determined, is it enough for the learning of the elements of Drawing, that this study should consist in commencing with the imitation of the parts of the head, and finishing with that of the entire figure?

[After having demonstrated, (continues the Editor of the *Bulletin*,) by the reasoning and by the authority of Leonardo da Vinci, of Michael Angelo, of the artists of antiquity, &c., the necessity of the study of the anatomy of the bones and muscles, and that of the proportions, M. F. RAVASSON proceeds as follows:—]

In fine we have seen above that Drawing is properly speaking the representation of the proportions of things as they appear to the eye. We have also seen, that if we can hardly well judge of the reality by the visible appearance, which is for us its sign, we can hardly see the appearance either as it is. Hence, constant difficulties, as well when we invent, to give to the things we imagine the forms they ought to have, as when we imitate, to judge accurately of the appearances of things and to reproduce them faithfully. Hence an uncertainty from which we can scarcely escape without many errors.

Now the relation between visible appearances and actual proportions, for any point of view and any distance, is regulated by geometrical laws; by these laws, which are those of perspective, we can with certainty anticipate experience, and without error, destroy the appearance of the reality, or the reality of the appearance. Who then can doubt that the knowledge of it would be most useful to assure the judgment of the eye, and to protect it from error? And so, at the era, at which the art of Drawing among the moderns has attained the highest point of perfection, we see perspective held in honor.

After Brunelleschi, Paolo, Ucello, Lorenzo Ghiberti, who were the first to understand well its rules; after Pietro della Francesca, who was, it is said, the first to give the theory of it, the masters whose works adorn the middle and second half of the 15th century, Massaccio, Filippino Lippi, Pisanello, Signorelli, the precursor of Michael Angelo, Melazzo de Forli, whose frescoes probably taught Correggio the art of backgrounds, (*sotto in su*) Vincenzo Foppa, the two Bellini, Mantegna, Ghirlandajo, Perugino, showed themselves consummate in the new science; Leonardo da Vinci made it the subject of a book, now lost, which became the source of the principal works in which it was treated in the 16th century; Raffaele, in fine, to whom Perugino had taught it, knew it so well as to give lessons to the great Florentine painter, Fra Bartolommeo. And we cannot doubt, that the knowledge and habitual practice of perspective, effectually contributed to give to the art of Drawing, among the painters of the golden age of Art, much of that exquisite accuracy, and accordingly, that finished elegance, from which men subsequently receded more and more, according as counting more for the concealment of mistakes on the play of light and shade, and the effect of aerial perspective, men trusted more and more to the unassisted judgment of the eye.

It is not that when we learn to draw, we must frequently put in practice the rules of perspective, to find the place and dimensions of outlines and shadows. We have already said, that to construct forms by geometrical rule, is no longer to draw, but to trace them, and consequently it can not teach us to draw. But at the same time that it furnishes us with an exact means of geometrical construction and verification, the knowledge of the principles of perspective, united to the habit of applying them, must necessarily, in making us attentive to the perspec-



tive diminutions of proportions, and the laws which they follow, lead us to observe them better, to appreciate them, and to represent them more justly.

Now if the knowledge of perspective serves to make us judge well of all visible forms, of those of the bones and muscles, as well as those of the exterior surface, does it not follow, that it is with perspective that instruction in Drawing ought to commence? Practice should be founded on good theory, of which perspective is the entrance and the guide.

Will it be objected that it prolongs too much the teaching of Drawing, to join with it that of perspective, as well as the structure and proportions of the human figure? Very far from this, these are ideas which at the same time that they must throw light on practice, and so render its progress more rapid as well as more sure, may be acquired in a time relatively very short. These principles, says LEONARDO DA VINCI, who continually recommends to begin with the study of the scientific principles of Art, these principles are but a little thing near Art itself.

To learn in the first place, perspective; in the second place, the structure of man and his proportions; in the third place, only to draw the human figure; first, the several parts, and then the whole; such then is the order prescribed by Leonardo da Vinci for the study of Drawing, and which has not ceased to be the order most profitable to follow.

This does not, however, prevent the teaching of the scientific principles of Art from being usefully preceded by a certain number of lessons, consecrated to purely practical exercises, exercises which may consist of the imitation of simple figures, such as those of regular solids, of some parts of vegetables, &c. In these first essays, we would accustom ourselves to draw the outlines, to indicate the shadows; we would accustom ourselves, above all, to observe proportions and forms, and the very difficulties themselves which we should experience in judging of them accurately, and reproducing them well, would dispose us to recognize the necessity, and to comprehend the use of those principles, whose methodical application will serve in the regular course of instruction, to resolve successively the various problems of Drawing. These different exercises would thus form a sort of preparation for the regular course of studies, which would commence with perspective.

In our schools, (*lycées*) where for every reason the instruction must be but very elementary, the study of perspective will be necessarily confined to general principles, and to the applications most useful for the practice of Drawing. Care should be taken above all to explain how this science, which is at present scarcely applied save to the foreshortening of regular forms, which can be geometrically drawn such as those of a building, may be applied alike to every kind of forms, and particularly to the human figure.

The study of measures (and proportions) should extend only to those which it is most important to know, and which are the most constant; and the master should apply himself to explain by examples chiefly borrowed from the *chef-d'œuvre* of antique art, how the infinite variety of individual forms reconciles itself with the general rule, which is the law of species. The study of the anatomical structure also should be limited to what is most necessary to know, and what may be learned from casts, prints, or photographs, upon the situation and functions of the muscles and bones.

But, on the other hand, it would not be enough for the scientific principles of Art, that some lessons more or less abstract, should precede the practice. In Art, practice is the end, theory is one of the means of reaching it. From the start, theory ought then to be accommodated to practical use, and practice ought to the end, be enlightened by theory, and incessantly take counsel of it.

Consequently, when the principles of perspective are explained to the Students, in our schools, care should be taken to make them sensibly understand those principles, by exhibiting to them, and causing them to make for themselves immediate applications to objects analogous to those which a little later they will have to draw. And on the other hand during the course of practical study, and throughout its whole continuance, no occasion should be neglected to make them see how the problems offered to the eye by the foreshortenings, implied by relief, in every object of nature, all range themselves under the general laws of perspective, and how it leads to resolve them. It is thus that throughout all instruc-

tion in Drawing, the main is verified, that "Perspective is the bridge and helm of painting."

In the same manner, in giving the necessary instructions upon the anatomical structure of Man, as applied to the Art of Drawing, and upon his chief proportions, care should be taken to make it clear from the very first by examples of its practical usefulness. Afterwards, as fast and according as the student is made to draw the different parts of the human figure, or even entire figures in different movements and attitudes, he should be made to study it anew, more deeply, and in greater detail, and as well structure as proportions. For this purpose no mode perhaps is better than that proposed by Alessandro Allori, and which was but the application to Instruction in Drawing of the ordinary manner of proceeding adopted by Michel Angelo; a mode which consists of either before making the student draw each part of the body as it is in outward form, to make him first draw the bone which it includes, and then the muscles or cartilages which are covered by the skin; or at least occasionally, to place by the side of the models after which the superficial figures of the objects are to be reproduced, the representation of their anatomical structure, a representation, which in part explains their appearances, and which thus leads the student, as in other respects the knowledge of the laws of perspective leads him, to understand them better, and therefore to draw them better.

In anticipating experience, according to an expression we have borrowed from Leibnitz, science reduces the probabilities of error, which experience always allows, and lets none of them exist, as has been said also of wisdom in respect of chance, save what cannot be taken away. This is also what the previous study of the Parts does in regard to the study of the Whole. The parts once well known in their constituent elements, in the chief varieties of form and under the different aspects which they can present, when we come to the whole we half know it already, and familiarized with elements analogous to those of which it is composed we understand it better and represent it better. It is, therefore, as we have said, that the parts must be studied before the whole; it is, therefore, also that there is no use in studying them unless we study them profoundly, so as to know them well, and that, consequently, "we must not pass from a first to a second unless we are in possession of the first."

From this, several practical consequences follow. In the first place the parts of the human figure ought to be, in general, as well in models as in the copies which the students are chused to make, of equal dimensions with nature, or at least very nearly so; for in objects of small size one is more exposed to miss seeing all, and for the same reason, "in little things one does not see his own faults as he does in greater."—Once master of the detail of the parts, we may, on the other hand, when we come to draw entire figures, give them without any inconvenience, smaller dimensions. In drawing such figures, in order that we may keep the different parts of the copy we are making in proportion one with another, we must embrace the whole of it at a single glance; and the custom has very reasonably grown to be not to give the drawing of the entire figure dimensions greater than those of an ordinary sheet of drawing paper. There is something more; these dimensions are those ordinarily given to the models themselves; now, since we learn to draw only by the judgment which we apply to the relations of dimensions or Proportions, and as, consequently, it is important that beginners should not be able to contract the habit of taking measures on the model to dispense with that judgment, it is a useful thing to practice them in giving to their drawings, representing entire figures, dimensions different from those of the models from which they copy. It will then be proper, if the models in general are only of the size of an entire sheet of paper, to make copies from them occasionally of a smaller size. But for this reason, that in little things one cannot well judge of his own faults, and that the student may not become accustomed to content himself with inexact imitations, the dimensions of drawings of entire figures ought not, in any case, to sink lower than those of a half sheet of drawing paper.

In the second place, objects are only well distinguished by their lights and shades, which render sensible their relief. If the line which marks the extreme limits be sufficient to represent the figure on a smaller scale, and to secure its recognition, it is but by the lights and shades presented by its surface that we can

understand exactly and completely its proportions, its character, and its special beauty. In order to fulfill the precept according to which, in all the course of his studies, the student must not pass from one object to another until he understands the first well, it is therefore necessary that in respect of every object he draws, from the most simple parts to the most complicated whole, he should not confine himself to a line, nor even to a rough indication of the model, but he must apply himself to reproduce, and to reproduce exactly, the lights and shadows. "If you wish, oh draughtsman," says Leonardo da Vinci, "to make a good and useful study, judge well among the lights which are those, and in what number, which possess the first degree of brightness, and so among the shades which are those which are darker than the others, and in what manner they mingle together, and compare these always one with another; and lastly, let your shades and lights be joined without lines or points, and mix with each other like smoke." And when you shall have brought your hand and your judgment to this amount of exactness, the practice of drawing will come to you so fast that you will not even be conscious of it."

To express the exact character of the shadows with the same pencil which serves to mark the outline, to render it with softness, and, according to the Italian expression *sfumato*, by parallel, or crossed shading, great labor is required, which occupies much time. With a stump both the shadows, and the passage of the shadows into the lights, can be imitated, both more easily and more quickly. It would seem then, and it has been proposed, to prescribe the use of the stump rather than that of the pencil for the imitation of the shadows.

The Commission is nevertheless of opinion that for teaching, and in order to form the eye to judge well of forms and their character, the pencil is preferable to the stump. The pencil represents shadows by simple lines. These lines according to the direction in which they are traced, may contradict the forms whose relief they should serve to express, or, on the contrary, by conforming themselves to these, may assist, by their very direction, in making them better understood. To put in the shadows with the pencil, the general effect and the details of the forms must be then observed every instant, as well as the changes which they undergo by foreshortening. Each line, each shading becomes thus a teacher of the character of things, of their anatomical construction, and of their perspective. This is what we are shown by the drawings of the best painters, and the prints of the best engravers, with whom to put in the shades is never any thing else than to draw. Moreover, we have not stumps always by us; and on the other hand we have always at hand a pencil, or a pen, or something which can take its place and perform the same office. It is important, on principle, to learn to make use above all things of those means which are least likely to fail us, and to know how, in short, to paint the shadows with the same point which serves to make the outline.

If then the use of the stump may occasionally be permitted, if it be even useful to learn in good time to manage it, were it but to make one independent of every process and special mode of working, still the habitual instrument, and especially at the start, should be the pencil.

From all that precedes, it follows that the object we should propose to ourselves in indicating the shadows is, not so much to please the ignorant or ill-taught eye, by the regularity of the work, as to express in a manner as perfect as possible the figure and character of the objects drawn. In this manner by devoting to the study of the model and to the light and shade all the necessary time, the greatest part of the course will not be taken up, as often happens, in the minute imitation of the works of engravers. Besides, once that we have become, by sufficient practice, able to express the half tints completely, in the absence of which the lights and shadows do not possess their true character, but which form the most difficult part of the study of the model, and that which requires the longest application, we can, without omitting them, spare ourselves, nevertheless, the time necessary to represent them well with the pencil. For this it will be sufficient to draw on a ground by whose tint they are supplied. This is what was done in the best times of Art, by using for drawing paper, paper slightly colored, upon which the shadows were indicated in black, and the brighter lights in white. And according to Leonardo da Vinci, who managed the pencil as well as the pen,

with astonishing dexterity, this is in fact, the best method to draw from models in relief.

We have seen that it is by the separate parts of the human figure, and not by the whole, that a beginning should be made; and for this reason, that in all things the path which ought to be chosen is that which leads from the simple to the complicated. For the same reason, the first models should not be reliefs, (round figures,) but imitations of relief in the flat. "Begin," says Leonardo da Vinci, "by copying the drawings of good masters, you may afterwards copy from figures in relief." Drawings, indeed, or prints, or even photographs, do not offer effects of perspective so deceptive or so enigmatical as those given by reliefs, or round figures; the lights and shadows in them have not the same magic, and allow of being more easily understood. And in fine, the very labor by which the author of the drawing or print has imitated the relief or round, is, for him who seeks to imitate it in his turn, a necessary imitation in the different works of Art. Figures in relief (in the round) should not then be drawn until the student is in a condition to reproduce drawings and prints with sufficient accuracy.

These drawings or prints, whether they represent the parts of the human figure or entire figures, ought to be the faithful reproduction of types borrowed from the best masters of all times. Photography, too, may come to the assistance of the pencil or the graver, not only in the multiplication of drawings of good authors, or of rare prints, but also even in affording direct reproductions of masterpieces of painting or of sculpture, or representations of nature.

As to models in relief, (figures in the round,) it is among the *chefs d'œuvre* of ancient sculpture that they should almost all be chosen.

Under the influence of systems in error both as to the object and the aim of Art, a custom has become established of selecting almost exclusively, as models for instruction in drawing, among the specimens which remain to us of the ancient statuary, figures of the class called ideal figures, in which it is believed may be found the representation of human nature in its most abstract generality, figures possessing the least individuality possible; without perceiving that of these figures, those which are more remarkable for the regularity of their forms than for their truth are, for their most part, copies or imitations in which the particular character presented by the originals has more or less disappeared, and their general proportions only remain,—it is to such second-hand works that the preference is often given. And from this it arises that in learning to draw, one learns to regard only a conventional type of forms and movements, and one becomes incapable of comprehending the infinitely varied beauties of nature.

In consequence of the discovery made at the beginning of this century of a great number of original works of the finest period of Greek statuary, a discovery which vividly affected the imagination of men: in consequence also of the reaction in an opposite direction which was naturally produced by the insipidity of so many works inspired by the worship of a false ideal: the opinions which used to govern the domain of art, and that of criticism, have become modified. Individuality, Truth, Life, are restored to their rights; and it may even be doubted whether, after, having so long inclined towards one of the two poles between which modern art has almost always oscillated, we have not now thrown ourselves too far in the direction of the other.

However this may be, elementary instruction has continued almost everywhere to follow the same errors as before. To cut this short it has been proposed in the commission, to allow no models in future to be taken, among so many works of ancient sculpture which remain to us, but those which carry to the highest pitch the character of individuality and truth: that is, the Portraits.

The Commission has come to the conclusion, that if this proposition should not be admitted because it is exclusive in its turn, that if, on the contrary, we can not too soon place before the eyes of youth the *chefs d'œuvre* in which the human form, the most perfect of all forms in nature, has been represented in its highest perfection, and thus penetrate their still young imaginations with the principles and essence of the most excellent beauty, nevertheless, in order to teach them to understand and love nature in her inexhaustible variety, it is well to give them also a certain number of masterpieces of another kind to study, so as to reproduce, from the very first, those masterpieces in which Art has expressed with the greatest suavity the beauties proper to individual types: the most special and peculiar, without seeking to reduce them to a higher Beauty.

Moreover, those very figures should be selected which can, in a certain sense, be properly called ideal: the figures of gods, of goddesses, of heroes, of heroines, among the works of the best ages, in which the masters, penetrated with Nature and full of her spirit, have always known how to unite individuality and truth with beauty in their works. Such are the works which remain to us of Phidias or his contemporaries, and of the great sculptors who followed immediately after him.

"The painter," says Leonardo da Vinci, and the same may be said of the draughtsman, "should study by rule, and should let nothing escape being treasured in his memory." And it is therefore that he recommends the student, after having made a copy of a model as exact as he is capable of making one, to practice himself in reproducing it from memory. By this exercise, in truth, not only is the memory strengthened, without which there is neither art nor science, but also the attention, which is nothing else than the intellect itself strained and applied by the will; and in fine, those types which the student has learned to comprehend by attentive comparison of their proportions, preserved and constantly present in the imagination, become permanent subjects of new reflections, comparisons, and instruction.

To drawing after models should then be united as much as possible this practice of drawing from memory, which, long neglected, has been introduced successfully, as we have already had occasion to say, several years ago, in the teaching of the special school of drawing, (*école spéciale de dessin*.) But, as we have also remarked, in order that this practice should not have those inconveniences which attend on the habit of working without a model (*travailler de tête*), and that it may not keep one away from the observation and simple (*naïve*) imitation of nature, it is important, according to the express recommendation of Leonardo da Vinci that a faithful tracing should constantly serve to verify and correct the inaccuracies of the drawing from memory; it is upon this condition that such a practice may be used, without danger, to fix in the mind the results of the imitation of models.

In making the student study and reproduce the different models, the professor should teach him to attend to the expression, above all, of their essential character, that character which is from the very first visible in the whole, at one view, and which is found to be the same in the smallest details; he should teach him therefore, from the first, to express the general character in the whole, he should teach him in the next place never to lose this point of view, but to pursue his researches even to the details of the very smallest parts. He should apply himself thus to make his pupils understand how in the *chefs d'œuvre* of art, just as in the works of nature, the different parts are among themselves analogous in their movements, their proportions, and their forms; how, accordingly, while they have each their own peculiar nature and spirit, they nevertheless express by their correspondences and mutual agreement, the indivisible spirit which is the soul and principle of the whole; how, in them, in short, variety is thus made subject to the law of unity, which forms out of it an order and harmony.

He will apply himself to make clear how it is that in those masterpieces in which especially reign those proportions to which, with Leonardo da Vinci, we may give the name of Divine, with still greater variety is united a more perfect unity: how these two opposite elements of harmony rising at once, so to speak, to a higher power, and the unity of the idea becoming more vivid still by the very contrast of the diversity which it subdues under its law, there results that superior harmony which constitutes beauty; how, in short, in all true beauty, even when the character of the movements and forms is rather grace than strength, or elegance rather than majesty, nevertheless, by the predominance of the whole over the parts, of the unity over the variety of the subject, order partakes of grandeur, and with the beautiful, properly so called, is mingled more or less of what is called the sublime.

By these means he will teach his pupils by little and little to recognize in true beauty the image of that Spirit which is its divine and mysterious principle, and he will render them capable by degrees, of comprehending that thought of a great master, painter, and philosopher, that the Beautiful, for all that it manifests itself in bodies, is by nature Incorporeal.

But to teach men to judge accurately of the spirit of forms and of beauty,



which is the highest object of instruction in Drawing, the study which can be made of models copied and reproduced from memory is not enough. Their number is necessarily too much restricted. "It is not enough to draw," says Leonardo da Vinci, "we must still see and compare the works of different masters."

The pupils in our schools (*lycées*) not being able to go to seek here and there the various works of art dispersed in so many places, nor even to visit, except very rarely, the Galleries where they are collected in great numbers, shall they then be deprived of this necessary complement of education? This advantage would be secured to them to a certain extent if each school were made, as far as possible, a Gallery; and this might be accomplished without much expense, by placing not only in the hall of instruction, but also in the parlor, in the refectory, on the staircases, beneath the vestibules, in the several school-rooms, every where in which the arrangement of the place would allow of it, and in such a manner as to harmonize with that arrangement, reproductions, by casts, engravings, or photography, of the *chef-d'œuvre*, of every species of ancient and modern Art. Their powerful and favorable influence would thus be every where and always exerted over the minds of youth; fed by the poetry of Homer and Virgil, of Corneille and Racine, it would also feed itself, every moment of the day, and almost unconsciously, upon that of Phidias and Raffaele, of Jean Goujon and Poussin.

To this programme of studies the Commission thinks it right to propose to the Minister to add one branch of instruction which hitherto has not found a place in the teaching of Drawing as it has been conducted in our schools, (*lycées*), and which has nowhere perhaps been regularly organized; it is that of drawing specially applied to those forms which are altogether the creation of Art, and which in opposition to those of natural objects, we may call *artificial forms*. These forms are those of the different objects which Art invents for the various wants of life, or for the satisfaction of that which Michael Angelo called the insatiable fancy of man: buildings, furniture, vessels, utensils, ornaments of all sorts.

The beings which Nature creates are in their substance and their forms that which is required for the end which they have to fulfill; and at the same time they compose harmonies, either by their figures or by their colors, which satisfy one superior and universal end which is Beauty. The objects which Man creates for his use are also determined, both in their substance and their forms, by the very nature of the wants they have to serve. But, like nature, man also pursues at the same time a higher end. Among all substances, among all forms, he chooses as much as possible for his creations those which best satisfy the conditions of Beauty. This is not all: to these forms he adds others which may serve, either better to express the idea from which the first proceed, or else to raise their beauty; these accessories, by means of which objects tell what they mean, in some sort, with more clearness, force, and grace, and in a more elevated style—these accessories which form the poetic character of the principal forms, and which accompany while adorning them, as a musical harmony accompanies and emphasizes the theme of the melody—these are the *ornaments* of the creations of Man. In the first place, the forms which Art creates for the objects necessary to the different uses of life; in the second place, the *ornaments* of which they are susceptible; such should be the double object of this new branch of instruction, which the commission think it right to propose for institution.

Since the time which can be devoted in the schools (*lycées*) to the study of Art would not by any means suffice to complete it in all its parts, nor even in any one of them, it is evident that, instead of running over them all, so as to learn nothing, or very little, the best thing is, generally speaking, to apply ourselves to push as far as possible the study of that which is the most difficult as well as the most important, and which one can not know without being capable of learning all the rest in a little time, that is to say, the study of the human figure. For whoever is able to represent the human figure well in its proportions, its character, and its beauty, will learn without difficulty, and in but a little time, to represent as well the proportions, character and beauty of animals, landscape and flowers, &c.; while the converse of the proposition is by no means true. From hence it would seem that neither can there be found a place in the schools (*lycées*) for teaching the drawing of those forms which we have just called *Artificial forms*. These forms, in truth, composed of the same elements as those of natural objects,



do not surprise—for the most part do not even equal them in complications and difficulties. So a man may form a good judgment of the proportions of a candelabrum or vase, who could not judge as well of those of a great part of the beings which Nature has created. A man, on the other hand, who knows how to see animals and plants accurately, and therefore to draw them well, will be able to appreciate, and therefore to draw as it ought to be drawn, a vase, a candelabrum, or a volute. How much better still he who is able to understand and to trace out the cunning lines of the human figure!

But although in the drawing of the human figure the universal principles of the drawing of other kinds of forms is included, nevertheless, each of these kinds has again its peculiar principles. Hence it follows, that in order to draw well the forms they include, and consequently to form a good judgment of their proportions, of their character, and of the particular beauty of which they are susceptible, we must unite with the study of the drawing of the human figure, certain other special studies. If this is true of the forms of natural objects, perhaps it is still more true of those of which the imagination of man is the source. The forms of nature, in truth, being more or less analogous to our own, answer, by a secret harmony, to the intimate constitution of our souls, and hence it comes that even those who possess not the slightest trace of art, judge tolerably well of the beauty of such forms, whether in nature itself, or in the works of art which represent it. As to those, on the other hand, which are the creations of art, the cultivation of taste alone, by seeing and studying masterpieces, makes us capable of judging of them.

Again, for the very reason that these forms are those of objects which serve the ordinary purposes of life, and which our wants, or the variations of fancy, invite us perpetually to alter and renew, we have to exercise our judgment upon them continually; and this is another reason why it is desirable that studies of a special nature should put us in a condition to bring an enlightened judgment to the task.

To this consideration is to be added another, drawn from the interest of these arts themselves, with which, in our country of France above all, so many other interests are connected. If the destiny of Art, in general, depends in great part on the opinion, more or less enlightened, of the public, this is especially true of those arts which are closely connected with Industry, and which can not dispense with the connection. Separated from the public by intervening circumstances, more or less numerous, scarcely known to it, even the artist who, in these arts which are reputed as secondary, displays the rarest ability, produces no impression by the authority of his name, and exercises but a weak influence on the judgment of the majority of men. If, besides, in order to judge of pictures and statues, we are well content to defer to a certain extent to those skilled in the knowledge and practice of painting and sculpture, and who, in consequence, are necessarily the best judges of such works, still the same thing is not true in the case of those familiar articles by which we are surrounded, and of which we are making some use every moment, and every one willingly thinks himself capable of forming a judgment as well as any body else.

Lastly, let us add that if of all the branches of Art, the Drawing of such objects as industry appropriates to the various uses of life is not the most elevated, nor that consequently, which can most contribute to the education of the soul and the mind, it is that which, on the other hand, in addition to the advantage of enabling us to exercise a judgment upon those things of which we have the most frequent need, unites this advantage too, (which is a necessary consequence of the former,)—that of finding immediate employment in the greater number of industrial professions and trades.

In giving, then, the first and highest place in the study of the elements of art to the Drawing of the Human Figure, which is its highest branch, it seems that there are sufficient reasons to make room also for that branch of art which in some sort occupies the other extremity of the scale, and whose direct applications are by much the most numerous as well as, materially at least, the most useful.

Since those forms which are the creations of the imagination divide themselves naturally, as we have said, into great classes: namely, the figures themselves of buildings, furniture, utensils, &c., and the ornaments with which these different

objects may be clothed, the teaching of the Drawing of artificial forms should also be divided into two portions, corresponding with these two classes of objects. During the first portion of this teaching, the student should be made to study at first select profiles of some of the principal features of which Architectural Buildings are composed, the Vases, Brackets, Vasques, Balustrades, Candelabra, &c., adding sometimes the study of the ground plans of architectural works to that of their profiles. In directing the study of these objects, as in that of Man, the master should apply himself to make it clear how the proportions of the different parts depend on one another, and vary one with another; how in this agreement and connection, which give to every work of art its special beauty, as well as its definite character and expression, the thought shines out, the spirit which produced such forms; how from the harmonious concert of those proportions which Leonardo da Vinci called "divine," results at last the perfection of Beauty.

To this teaching should be joined the exhibition, by a sufficient number of examples, of the several modifications which the various forms must undergo, and the particular characters or expressions which they must assume, according to the difference of substances, following the different nature of marble, of stone, of granite, of wood, of ivory, of iron, of bronze, of the precious metals, &c.

In directing the special study of ornamentation, the professor should make known both the principal types which art has created, and those which it most commonly borrows, whether from the animal or vegetable kingdom; he should, above all, explain how it modifies the elements supplied by nature, and transforms them so as to please the fancy of men.

For every branch of this course of study, the models should in general be borrowed from Greek Art, which, in this department as in all the others, knew how to unite with the most perfect agreement of the forms, with the destination of the objects and their material, the greatest originality of character, the highest style, and the most surpassing beauty. Other models may, however, be added, borrowed from Roman and Oriental art, as well as from that of the Middle Ages, and of the Renaissance, which, though they do not reach the same degree of supreme perfection, have, nevertheless, produced a crowd of masterpieces in this department.

The exercise of reproduction from memory, which would fasten in the imagination the most finished types, should be applied to the drawing of artificial forms and their ornaments, as well as to that of the human figure, and will produce the same result.

Perhaps to these studies, should be added some practical lessons on the employment of color in ornamentation, lessons which would initiate the student to a certain extent in the knowledge of the relations and harmonies of tones in color.

To conclude, as in the case of figure drawing, besides the models of artificial forms, which may be made during the progress of the course, other *chefs d'œuvre* of art, placed in every direction throughout the schools (*lycées*) under the eyes of youth, would succeed in penetrating them with the spirit which produced them, with that universal spirit from which equally proceed that heroic *contours* of the marbles of the Parthenon, and the profile of the least of the earthen vases hidden in the sepulchres of Athens or of Valci.

[The Commission proceeds to point out the proper distribution of all these studies among the classes in the *lycées*, the schools of general education in France, and conclude with recommending that Masters in Drawing, shall undergo a special examination, and rank hereafter as Professors, and that the proficiency of the pupils shall be tested by frequent inspection confided to men possessed of special knowledge on the subject, who shall report periodically to the Minister the results of their observation.]

Upon this admirable report the Minister of Public Instruction has promulgated a Decree embodying its several suggestions as part of the national system.]

objects may be avoided, the teaching of the Drawing of artificial forms should also be divided into two periods corresponding with these two classes of objects. During the first period the student should be made to make a few simple drawings of some of the principal features of which Architecture is composed, the Vase, Basket, Pedestal, Column, etc. and which constitute the study of the ground plans of architectural works. The second period should be devoted to the study of these objects as in plan, and in elevation. The first period should be devoted to the study of the ground plans of architectural works, and the second period to the study of these objects as in plan, and in elevation. The first period should be devoted to the study of the ground plans of architectural works, and the second period to the study of these objects as in plan, and in elevation.

## XIII. CATHOLIC EDUCATIONAL ESTABLISHMENTS

### IN THE UNITED STATES

#### I. COLLEGIATE INSTITUTES.

There are at the present moment in the United States, about thirty-five colleges or collegiate institutes under the direction of Roman Catholics, two-thirds of which are duly incorporated, by the Legislature of the States in which they respectively are. Their influence may be estimated from the fact that they contain at least four thousand pupils, pursuing a collegiate course.

Little public attention has been given to these institutions, which are often confounded in popular ideas, with the theological seminaries, wholly distinct establishments of which we shall speak hereafter. They deserve nevertheless, especial study, inasmuch as they differ in their organization, plan of studies, mode of teaching, and regimen, almost entirely from the other colleges in the country. The oldest of these, that of Georgetown, was founded in 1791 by members of the then extinct society of Jesus, and has, since the partial, and subsequently general restoration of that celebrated order by Pope Pius VII, been conducted exclusively by them. The Jesuits also direct Saint John's College at Frederic, Washington Seminary, Loyola College, at Baltimore, St. Joseph's College in Philadelphia, St. John's College at Fordham, St. Francis Xavier's College at New York, the College of the Holy Cross at Worcester, Massachusetts, St. Xavier's College at Cincinnati, St. Joseph's College at Bardstown, Kentucky, the University of St. Louis at St. Louis, Missouri, St. Charles' College at Grand Coteau, Louisiana, and the College of the Immaculate Conception, at New Orleans, Springhill College near Mobile, and Santa Clara College in California.

Two Colleges, St. Joseph's, in Ohio, and Sinisawa Mound College, in Wisconsin, are directed by the Dominicans.\*

The University of Notre Dame du Lac, in Indiana, is under the charge of a community styled "Priests of the Holy Cross." Villanova College, in Pennsylvania is directed by the Augustinians; and the College of the Immaculate Con-

\* The Dominicans, Friars Preachers or Black Friars, were founded in 1215 by St. Dominic de Guzman, and spread over all Europe. At the time of the Reformation, some English Dominicans retired to Belgium, where they continued till 1805. Driven at that time from their convents by the French troops, a number of them, led by Father Edward Fenwick, an American, came to Kentucky, whence they have extended to Ohio. See *Spalding's Sketches of Kentucky*, p. 149-151. The Dominicans in Wisconsin are of more recent origin, being chiefly Italian fathers, brought over by the zeal of a member of their order, Rev. S. Mazzuchelli. For an account of this branch, see "Memorie storiche ed edificante d'un missionaries apostolico del ordine dei Predicatori," Milan, 1844. For the Dominicans generally, see Helyot, *Histoire des Ordres Religieux*, (Edition Migne, Vol. 2. p. 67.)

† The Priests of the Holy Cross were founded in 1839, at Maastricht, in France, by the Rev. Basil M. A. Moreau, and were introduced into Indiana in 1842, by the Very Rev. E. Sorin, who has since been Superior.

‡ The Hermits of St. Augustine were organized as an order about 1254, and follow a rule drawn

ception, at Galveston, by the Oblates.<sup>2</sup> All the others are under the charge of secular priests, that at Mount St. Mary's in Maryland, being what would be termed in France, a *Grand* and *Petit Séminaire*.<sup>3</sup> There is no Catholic College in the United States, with an exclusively lay faculty, and as we have seen, most of the colleges are directed by communities of various religious orders, the Jesuits having by far the greater number; and from being an order devoted essentially to the cause of education, have given more or less a form to Catholic instruction in all countries. The Dominicans and Augustinians founded long prior to the Jesuits, are devoted especially to preaching, missions, and the ministry, as auxiliaries to the secular or parochial clergy. The Oblates are a very modern order, whose object is missions to the ignorant, the visiting of prisons, and the like. These three orders have undertaken instruction only because the wants of the present time require it. The Priests of the Holy Cross are also a recent foundation, but as they avowed by copy the rules of St. Ignatius Loyola, Colleges enter in the regular sphere of their duties.

The various colleges have had properly no foundation, but are self-supported, and as the professors have no salaries, the income enables the institution gradually to reduce the debt. Almost all have begun with a heavy mortgage debt, the small amount which can be collected barely sufficing to secure the necessary ground and prepare the buildings for class use. Of the institutions which we have mentioned few, if any, are absolutely free from debt. Many of them are incorporated, and where such is the case, the legal title is in the corporation created by law; but where the legislature of the State declines or refuses to grant a charter, the title is vested in individuals as trustees. Each college is independent of the rest; there being no common bond among them; those belonging to the same order form one or more provinces of the order, under a superior, who every year appoints the professors in the various colleges. Among the Jesuits, the President of each college is appointed for three years by the head of the order, the Provincial appointing merely the professors; but each college is recognized as a distinct institution, the superior cannot transfer the property of one house to another, and each house keeps regular accounts with any other for any occasional payments made in favor of each other.

A religious order has in the present state of Catholicity in the United States greater advantages for conducting a college, from the fact of their cheapness of living, and the facility with which they can appeal, through members of their order elsewhere, to the benevolence of Catholics in other parts. Contributions from France, Mexico, and Germany, have often aided to erect, we can scarcely say endow, Catholic colleges in the United States.

Most of the Catholic colleges give boarding and lodging to the students, and for this, with tuition charge, about \$200 to \$250 per annum; for day scholars the usual terms are fifty dollars per annum. The mode of life in them, is very regular and strict; the pupils sleep in large dormitories, in each of which, one or more teachers sleep to prevent any disorder, and have an eye to the conduct generally,

from the writings of St. Augustine, Bishop of Hippo. A Father of this order came from Ireland to this country, about 1790, and settled at Philadelphia. In process of time others joined him, and the order assumed a regular form. Their college is of recent origin, and its opening was delayed some years by the Philadelphia riots of 1844, in which they lost a splendid library.

<sup>2</sup> The Oblate was founded at Aix in France, in 1815, by Mgr. Mazenod, now Bishop of Marseilles.

<sup>3</sup> Their order was approved in 1836, and devotes itself to the spiritual good of prisoners and the poor. Its American missions date from 1841.

All rise at a signal, and after dressing, descend in order to an apartment set apart for washing, &c., where they are under supervision. When entirely dressed, they generally meet in a large hall, where prayers are recited, and from which they proceed to the chapel where it is the custom for the students to hear Mass daily. After prayers the students proceed to the large study hall where each takes his seat at his own desk and prepares his lessons for the day. At the regular hour, they proceed to the refectory in order for breakfast, and during the meal one of the students reads aloud. A short recreation follows breakfast, and at its close, the students after getting their books from their desks in the study, proceed to their several classes, which open with a prayer and are continued for about two hours, and then after a slight recreation they return to the study and prepare the afternoon lessons, except such as pursue auxiliary branches, who now generally attend them, and under this head come German, Spanish, Drawing, as well as the classes of Natural Philosophy, Chemistry, &c. The pupils dine about twelve, and are allowed recreation till two o'clock, when they return to their classes for two or three hours more, the whole period of actual teaching being between four and five hours a day. After another short recreation, they reenter the study, and remain till supper time, when they proceed to the refectory. Here, as at breakfast and dinner, a student reads during the meal. Evening prayers are said after another recreation, and all then proceed to their dormitories. All are subjected to this regime from the highest to the lowest, and students are never allowed to gether without a prefect or tutor.

Thursday, not Saturday, is the usual recreation day of the week.

To understand the management of these institutions, especially those of the Jesuits, it is necessary to have a correct idea of the Society of Jesus. Like the Dominicans, Augustinians, and others, they are a religious order in the Catholic Church; and were founded by St. Ignatius Loyola, in 1540, as a missionary order, but soon devoted themselves in a particular degree to the cause of education. Their success was signal, their improvements in teaching were immense, and their text-books, grammars, rhetorics, editions of the classics, treatises on mathematics, navigation, gunnery, &c., became the standard works of the time. During the last century a strong party was formed against them, supported and excited by the anti-Christian philosophers of France, and they were successively deprived of their institutions in France, Spain, and Portugal, and expelled from the two last countries and their various colonies. Pope Clement XIV., on this, entirely dissolved the Society, but it was restored by Pope Pius VII., and now comprises about five thousand members.

It has existed in the United States since the settlement of Maryland when some Fathers came over; but the greater part of the Jesuits in the United States were originally colonies from the order in France and Belgium.

The Society of Jesus consists entirely of men; and women are not permitted to live in their houses even as servants. Of their number, about one half are priests, the other half scholars, and temporal coadjutors. The scholars are young men intended in time, to be promoted to the priesthood, but engaged either in studies for that purpose, or in teaching; the temporal coadjutors correspond to the lay brothers in other religious orders, and attend to the domestic duties of the

This custom is not universal.

house, the cultivation of the ground, or ply their trades for the benefit of the community, as carpenters, tailors, smiths, carvers, painters, and the like.

The teachers, so far as the college is concerned, are the priests and scholastics, appointed to the several classes for the time being; having no salary, but simply receiving like the lay brothers, their food and raiment.

A Jesuit college comprises six classes, styled in the Ratio Studiorum of the Society, Lowest Grammar, Middle Grammar, Highest Grammar, Humanities and Rhetoric with the Class of Philosophy.

The lowest Grammar class, goes over the rudiments of Latin and Greek grammar, and reads extracts from Cicero, Phœdus, and Nepos; in the Middle grammar, the whole Latin grammar, and most of the Greek is taught; the authors read, being Caesar, Ovid, Æsop, Cebes, and Lucian. The highest grammar class is devoted to a review of the whole grammar, and to the inculcation of the idioms, exceptions, particular turns of phrase and prosody in Latin, and to the whole grammar in Greek. The authors named, as suitable to this class are Cicero's Letters, De Amicitia, De Senectute, Sallust, Quintus, Curtius, and Livy, among prose writers, Ovid, Catullus, Tibullus, Propertius, Virgil's Eclogues, fourth Georgics, fifth and seventh Æneid, among the poets, and in Greek Xenophon, and St. Chrysostom.

In these classes the teacher prepares each day's lesson with the class in advance, translating it word by word, explaining the construction, elucidating difficulties, and finally rendering it into pure English. The pupils are then required to commit the lesson to memory, learn the translation and bring as an exercise either the literal translation of each word, or the free translation of the whole, or the parsing. An exercise every day is however, required, and this entails a great deal of writing on the part of the student.

The exercise of the memory is much insisted upon, and it is practised in all the classes, the object being to store the mind with Latin words and phrases to be used in Latin composition, the great object of this plan of education. As the pupils advance, this branch is much cultivated, and no endeavor spared to give the pupils a pure style, and enable them to write correctly in prose and verse. The years especially devoted to poetry and rhetoric, are spent in the study of the best specimens of poetry and oratory in Latin, Greek, and their own tongue, and in analogous efforts of their own. Our system wants perhaps unity in this point; a pupil reads more than in the Catholic establishments, but does not read to the same purpose. We translate more and appreciate less: accordingly we find the course in Catholic institutions made up more of extracts, while in other colleges entire books are read, Caesar's Gallic war, Virgil's Eclogues, or Books of the Æneid or Iliad. The period of college life among us, being entirely too short to read in class any considerable amount of the classic writers of antiquity with our own too neglected classics, it may well be a question whether the object of college education is not lost sight of. A complete acquaintance with the masterpieces of literature being impossible, all that college education can aim at, is to form the taste of the pupil, and enable him on leaving his Alma Mater to pursue his reading understandingly. Few graduates of our colleges ever take up the classics *censuere*. Yet, if instead of reading a whole book of Caesar, Sallust, Livy, or Tacitus, beautiful narrations were selected, well studied, explained, and compared with narratives from historians of our own tongue, and then made the basis of composition, the whole would become practical.



To return, however, to the details of the classes:—The class of humanities is intended to lay the ground work for eloquence, by a knowledge of language, a degree of erudition and an acquaintance with the precepts of eloquence. Cicero, Caesar, Sallust, Livy, Quintus Curtius, Virgil and Horace, are the chief authors placed in the hands of the pupils, and the teacher is instructed to devote his attention chiefly to observations in Latin and English, on the force and etymology of words as used by the best authors; on the various forms of expression, in comparisons of the genius of the various languages, and in encouraging imitations.

The class of Rhetoric is devoted to Oratory and Poetry, and the authors are Cicero's orations, and Quintilian, Cicero, and Aristotle, as Rhetoricians; while in Greek, Demosthenes, Plato, Thucydides, Homer, and Hesiod, with St. Basil and St. Chrysostom, are recommended.

During this year, composition in prose and verse, in English and Latin is much encouraged, the lessons serving as models. To render them so, the teacher develops the idea of the poet or orator, shows his plan, and how aptly he brings in the various circumstances to produce the effect intended, whether to move or to please; the example of the various rules of composition are brought out and compared; the allusions of the author are all necessary to a complete understanding of his idea fully explained, and finally, the choice of words examined.

In reading English or French authors, the same plan nearly is followed.

The class of philosophy embraces Logic, Metaphysics and Ethics, and extends over one or two years; little time being given to any other branches, except the higher mathematics and the evidences of religion. In philosophy the text-book is Latin, and Latin is the language of the class. The portion of the author for the day is recited by the pupils and then commented on by the professor, who when a thesis occurs, makes the objections given by the author and others also, for them to solve. On certain days theses are maintained by the students against such as may be appointed to object.

During the three Grammar classes, Humanities and Rhetoric, the ordinary branches of an English course, History, Geography, Antiquities, Mathematics, and Modern languages, keep pace with the learned languages, and are taught as in the schools of the country generally. Diplomas are conferred only on those who pass through the year of philosophy creditably enough to stand a fair examination.\*

This rapid sketch will give some idea of the more remarkable points of peculiarity observable in these institutions;† and almost all with slight variations are to be found in the other Catholic institutions in the country, those under the secular clergy approximating more, however, to the general institutions of the country, the teachers being employed. Mount St. Mary's contains a theological seminary

\* Most of the Colleges we have mentioned are incorporated; but New York refuses to incorporate the College of St. Francis Xavier, and Massachusetts that of the Holy Cross. The graduates of these institutions obtain their degrees from other institutions on examination and proof of proficiency.

† We have not mentioned the use of the Missal and Breviary, as Class Books, for though it has been asserted in an educational work issued by the authority of the State of Michigan, that Catholic Institutions use them, we may say that no Catholic teacher ever dreamed of introducing them, first, because they are very expensive, and unhandy, a Missal being generally a stout quarto or folio, and a Breviary, a four volume work, or a portly royal octavo; secondly, because the price which it costs from two dollars upwards, would make it very expensive, and thirdly, because they are of very inferior Latinity. The work to which we refer is published by Harper & Brothers, New York, and it is a striking proof how little Catholic Institutions are known, when such an assertion, totally devoid of foundation, can be made, not incidentally, but as the basis of an argument.

under the charge of secular priests, and the seminaries are teachers in the college, as is the case in France, where these colleges, termed *petits séminaires*, were instituted originally for such only as were to enter the *grand séminaire* and pursue divinity studies, but were subsequently thrown open to all students. Mathematics are cultivated in about the same manner as in our American institutions; less time being given however to Arithmetic and Algebra, and more to the theoretical parts of Arithmetic, Algebra, Geometry, Analytical Geometry, and Calculus, have each a year; and with these latter are pursued courses of Natural Philosophy, Chemistry, Mechanics and Astronomy. In all these branches the ordinary American text-books are used, and our usual system of instruction more or less closely followed. History forms a regular part of the instruction from first to last, and where matters are regularly organized, includes a complete course, beginning with Sacred History in the lowest class, followed by a short Ancient History, History of the United States, and then fuller Ancient and Modern History. In some, however, small general compendiums of History; and Histories of the United States, are used in the lower classes; and General Histories in the more advanced classes. The authors adopted, so far as Modern History is concerned, are almost exclusively the works of Catholic authors, few others being free from what Catholics consider erroneous views, which they can not teach.

The religious instruction in these institutions is less than is usually supposed. Once a week, usually on Saturday, a lesson in the small Catechism is recited and explained at length by the teacher, or some other point developed by him. On Sundays, and holidays of obligation, a sermon is preached at the High Mass which all attend; but the amount of direct religious training is comparatively slight. Piety is cultivated, more especially by Sodalties or devout Associations formed among the pupils, the members of which meet at certain times in the week for prayer in common, instructions and exhortations. These sodalties generally have libraries of their own, exclusively of pious books; by the circulation of which feelings of devotion are nourished and maintained. In the course of each year a retreat is generally preached to the students: that is, several days are devoted exclusively to devotion and instruction in the great truths of religion, especially such as are calculated to excite sorrow for the past, firm resolution of leading a better life, and a desire of advancing in christian virtue.

The religious duties of Catholics are of course strictly observed, and as a general thing, the pupils go to confession every month.

These are we believe the points on which a stranger would naturally seek information as regards these institutions: and we shall close by some remarks on another class, the Catholic Theological Seminaries or Schools of Divinity.

## II. THEOLOGICAL SEMINARIES.

The various religious orders have regular courses of divinity for their scholars, or students preparing for the priesthood, which is conferred by the Bishops, when satisfied as to their proficiency; for the formation of a secular or parochial clergy, each Bishop according to the decrees of the Council of Trent, should have a diocesan seminary. The Catholic Bishops in the United States have endeavored to carry out this, and Bishop Carroll, soon after his appointment founded St. Mary's Seminary at Baltimore, the oldest Catholic Theological Seminary in the country. It has been from the first, directed by members of the Association of St. Sulpice,

who are connected with the house at Paris. There are also at present in the United States the following Theological Seminaries: Mount St. Mary's, Emmittsburg, 24 students; St. Charles, Philadelphia, 19; St. Joseph's, Fordham, N. Y., 40; Seminary, Buffalo, 18; Seminary, Wheeling, 7; Seminary, Cincinnati, 14; St. Thomas', Bardtown, 5; St. Mary's, Cleveland, 14; St. Charles, Vincennes, 15; St. Vincent's, Lafourche, La., 12; St. Louis, Carondelet, Mo., 28; St. Mary's, Barrens, Mo., 32; Seminary, St. Paul, 4; Seminary, Mobile, 5; St. Francis de Sales, Milwaukee, 12; St. Thomas, San Francisco, 12; Seminary of Guadalupe, California, 12.

These Seminaries are in many cases very small, several having less than ten students, and none over fifty. For entrance into them, a knowledge of Latin is required and is generally good education, but as will be evident no regular standard can be fixed in so many incipient institutions.

The course of education in all these theological seminaries is uniform. The studies are in Latin, and comprise a course of at least three, sometimes four or five years. The first year is given to philosophy, and this is taught as in the colleges, but with a direct reference to the future study of theology, so that even graduates of Catholic colleges entering, often repeat their philosophy. Under the head of philosophy is comprised Logic, Metaphysics and Ethics: the text-books are, Bouvier, Liberatore, Rothenflue, the Philosophy of St. Sulpice, Fournier, Dmowski, or a course dictated by the Professor.

After the class of philosophy, theology is begun; and there are generally two professors, one of dogmatic theology, the other of moral, who both teach in Latin in the same way as the professor of philosophy. The authors on Dogmatic theology most used are Kenrick, Perrone, Bouvier; on Moral Theology, St. Liguori, as arranged by Neyraguet, Kenrick or Gury. Besides these, there are professors and classes for collateral studies, Ecclesiastical History, Holy Scripture, Sacred Oratory and during the last year of the course, Liturgy, which is rather a preparation for the duties of the priesthood, than a course of study.

In many countries, boys who evince a vocation for the priesthood, have the Little Seminaries in which they pursue studies, having a direct bearing on those to be pursued in the Theological Seminary, but of such institutions, only three exist in the United States; one at Ellicott's Mills, under the Sulpicians, and containing fifty-four pupils, another at Barrens, Missouri, under the Priests of the Mission, containing a hundred students, and a third at Bardtown, with fifty-two. These institutions are perfectly distinct from the colleges, and yet as many of the students on concluding their course, feel no disposition to enter the Theological Seminary, they contribute to the general cause of education.

Besides the students in the Theological Seminaries in the country, many American candidates for the priesthood pursue their divinity studies abroad, in Canada, Ireland, France, and especially at Rome, where it is now in contemplation to erect an American College, which notwithstanding its name, is to be merely a Theological Seminary for students from the United States.

Besides these Collegiate Institutes, there are some others of less pretension, sometimes confined to an English course, but these are chiefly day-schools, and their methods of instruction and course of study differ in various parts. The Brothers of the Christian Schools,\* conduct several such schools, the largest being

\*The Brothers of the Christian Schools, were founded, in 1679, by the venerable John Baptist de la Salle. Their chief object is the direction of parish and free schools. They were introduced into the United States in 1846, and have already the direction of a very large number of schools.

the Academy of the Holy Infancy at Manhattanville, which contains seventy pupils, all boarders.

### III. FEMALE ACADEMIES—CONVENT SCHOOLS

While the various religious orders which we have mentioned, and the secular clergy thus supply the educational wants of boys and young men of more advanced age and acquirements, the education of the other sex has not been neglected by the Catholics in the United States. According to the Catholic Almanac for 1856, there are one hundred and thirty female academies, while the literary institutions for young men are set down at forty-seven.

All these female academies are directed by members of religious orders of women. Of these orders the oldest in the country is the Ursulines, whose convent in New Orleans, dates back to the year 1727. These religious have always enjoyed a high reputation as teachers, and convents of their order exist also at Galveston and San Antonio, in Texas, at St. Louis, in Missouri, Cleveland, Fayette, and Toledo, in Ohio, and at Morrisania, New York.\*

The method of teaching in these schools is not peculiar, except in so much as continental ideas are introduced by ladies from Germany and France. Latin being seldom, if ever, made a part of the course of instruction, a thorough English education, with such accomplishments and acquirements as befit their sex, is the object which they propose to attain. The regimen of the establishments being based on that of the convent, does not vary greatly in its outline from that of the colleges and institutions for the other sex, the modifications being such as would naturally be expected.

The course of study also varies according to the requirements of the locality.

After the Ursulines, the oldest teaching order in this country is the Visitation Nuns, established in the United States by Miss Alice Lalor, a native of Ireland, toward the close of the last century. Their first convent was that at Georgetown, and that Academy has constantly maintained a high name for the solid and polished education which it affords. There are besides, academies of the Visitation order at Brooklyn, Mobile, St. Louis, Frederick, Baltimore, Catonsville, Wheeling and Keokuk.†

The most popular convent schools, especially with the higher classes are, however, those conducted by the ladies of the Sacred Heart, a recent order formed especially for teaching and aiming to give the highest grade of instruction to young ladies. They opened their first house in the country at Florissant in Missouri, in 1817, and they now conduct academies at St. Louis, Detroit, Manhattanville, New York, Rochester, Eden Hall near Philadelphia, Baton Rouge, Grand Coteau, and St. Michael's, in Louisiana.‡

\* The Ursulines were founded in 1537, at Brescia, in Italy, by Saint Angela Merici, as a pious association. In the seventeenth century, it became a religious order of cloistered nuns in France, and as such spread to other countries. The foundress of the house at New Orleans, was Mary Tranchepain, de St. Augustin. There is a convent of the same order at Quebec, founded in 1630, by the celebrated Mother Mary of the Incarnation.

† The order of the Visitation was founded in 1610 by Saint Jane Frances de Chantal (grandmother of Mme. de Sevigné) under the direction of the amiable Bishop of Geneva, St. Francis de Sales. In the United States the foundress Miss Lalor, in religion, Mother Teresa, beheld her work consolidated in 1813. For an account of the order, see Butler's Lives of the Saints. (August 21,) or Helyot Histoire des Ordres Religieux. IV. 925.

‡ The Ladies of the Sacred Heart were founded in France by Magdeleine Josephine Barat, the present Superior in the early part of the present century. It was approved by Pope Leo XII. in 1826, and spread rapidly in France, Italy, Belgium, Germany and America. she the principal.

The Sisters of Charity\* instituted in this country by Mrs. Elizabeth Seton, daughter of the celebrated Dr. Bayley, include teaching among their good works, and have since their origin had a celebrated academy at Emmettsburg, and similar establishments with day-schools in a great number of cities, including the academy of Mount Saint Vincent near New York, a large and flourishing school.

Besides these, there are other orders such as the Sisters of the Holy Cross, and Sisters of Providence in Indiana, the Sisters of Loretto in Kentucky, and other Western States, Dominican nuns in Ohio and Kentucky, Sisters of the Immaculate Heart, Sisters of Mercy, Sisters of Notre Dame, Sisters of St. Joseph, Sisters of St. Bridget, &c., some directing a number of academies, others almost solitary institutions. These orders all differ from each other as to their rules and dress, but nearly resemble each other in their plan and mode of instruction.

#### IV. CATHOLIC FREE SCHOOLS.

Besides the institutions for youth of both sexes to which we have alluded, the Catholic body maintains a large number of free schools attached to their churches, and nearly equaling in number the churches themselves. No fact is better known or has been more widely made known than the dissatisfaction of Catholics generally with the free schools maintained by the several States, a dissatisfaction arising from an anti-Catholic and proselytizing spirit frequently evinced by persons more or less connected with them, even where the law endeavored to preserve the Constitutional neutrality on the difficult point of religion. The Catholics at one time endeavored to obtain such modifications in the system as would effectually check all spirit of proselytizing, but as the consequence was an embittered reaction of that very spirit, they very generally set to work to create as far as their means permit free schools of their own. An exact estimate of the number and state of these cannot easily be given; many are conducted by lay teachers under the direction of the pastor of the church, but a large number are directed by members of religious orders. The Brothers of the Christian Schools have charge of parish schools for boys in the dioceses of New York, Albany, Brooklyn, Baltimore, Detroit, St. Louis and New Orleans; Franciscan Brothers conduct similar schools in the diocese of Pittsburgh; Brothers of St. Joseph in Indiana, Xaverian Brothers in Kentucky, Brothers of Christian Instruction, in Alabama and Mississippi, and by other communities in other parts. Free schools for girls are conducted by the Ursuline, Ladies of the Sacred Heart, and especially by the Sisters of Charity, Sisters of Mercy, Sisters of Notre Dame, School Sisters of Notre Dame, Sisters of the Holy Cross, Sisters of Providence, Sisters of Loretto, Sisters of St. Bridget and others.

These schools for both sexes must number in the whole United States over one thousand, the number of pupils varying, however, greatly. The Brothers of the Christian schools in New York city alone have over 2,000 pupils under their care, though conducting comparatively few of the parish schools in that immense city.

J. G. R.

\* The Sisters of Charity founded in France by St. Vincent de Paul have been the model on which most of the other orders of Sisters have been formed. Their vows are not perpetual, and they are not cloistered like the Visitation and Dominican nuns, and Ladies of the Sacred Heart.

#### XIV. PUBLIC INSTRUCTION IN DUCHY OF NASSAU.

THE DUCHY OF NASSAU, embraces an area of 1751 square miles, and a population, in 1853, of 429,341. The state of education is highly creditable to the government, and the people.

##### I. ELEMENTARY SCHOOLS

The present organization of Elementary schools was introduced in 1817.

The school age embraces the period from six to fourteen years. Every child between these ages, must be under instruction at home, or in some school, public or private. Parents who do not instruct their children at home, or send them to school, are subject to a fine, which is increased on each repetition of the offence.

The time of daily attendance is from 7 to 10 A. M., and 1 to 4 P. M., in summer, and from 8 to 11 A. M., and 1 to 4 P. M., in the winter, except on Wednesdays and Saturdays, which are kept as half holidays.

The course of instruction embraces religion, reading, singing, writing, arithmetic, geography, and the elements of natural history, music, geometry, and in a few schools, of agriculture and manufactures. Girls are taught appropriate needle work on Wednesday and Saturday afternoons.

The school-house is built by the parish, and furnished with black-board, large tables of figures, and other means of visible illustration, and is generally provided, not only with a play-ground, but with rooms and a garden, and orchard for the teacher.

Teachers must be trained for three years in one of the two Normal Seminaries established by the government for this purpose,—one for Protestants at Usingen, and the other for Roman Catholics at Montaubauer;—each calculated to accommodate about sixty pupils. At the expiration of three years, they have to pass an examination, after which they are appointed school assistants, with a salary of about \$60 which is increased at the end of each successive two years, until they are appointed head master, with a salary of about \$300, with the perquisite of a home, garden, and not unfrequently of organist of the parish church, and of leader of singing societies. When a teacher becomes unfit for service by sickness, or old age, he is entitled to a pension of at least one half of his former average salary; and at his death, his widow and children are provided for out of a special fund. Small as the salary is, the teacher in Germany prefers the certainty of even a small salary, paid at regular intervals, with the provision for old age, and his



family after his death, to a much larger salary, in a private school. His social and political position is higher; he ranks with the officials of the state. Females are seldom or never employed for teachers, even as assistants, except in the instruction of girls in domestic economy.

The differences in religious opinion and worship is provided for, both in the instruction and supervision of the schools. The population is divided up among Lutheran and Calvinistic Protestants, Roman Catholic, and a few Jews. In purely Protestant parishes, Protestant teachers are employed, and in Catholic districts, Catholic teachers. Where the population is mixed, and the school has two or more teachers, the teachers are selected from the several denominations. If there is but one teacher, the teacher is of the religion of the majority. "Experience has shown," says a well informed school inspector, "that when there is a conscientious endeavor to act with impartiality and justice; that there is no insurmountable difficulty in reconciling the religious prejudices of any class to the public school."

The supervision of the schools is left (1.) to a local committee, consisting of two Protestants and one Catholic, when the former predominate, and two Catholics and one Protestant, when there is a Catholic majority of inhabitants; and (2.) to school inspectors, [some seventy in all] appointed by the government, each having charge of all the schools in a certain number of parishes.

The local committee see to the repairs of the school-house, conduct of the master, and his methods of teaching, and ascertain by the monthly list prepared by the teacher, the school attendance of the children, who are esteemed as being of the proper school age, and report to the proper authority those parents who are negligent in this particular, for the payment of the fines.

The district inspectors, who are generally clergymen, selected from different denominations, for their interest in education, conduct the examination of the teachers for promotion, hold a public examination of the school in the spring, and a conference of the teachers once a year, and require a written account, or return of each school annually from the teacher.

The support of the schools is thrown (1.) upon parents, who pay into the treasury of the parish from 50 cents to \$2 a year for each child; (2.) on the parishes which are required to appropriate something every year to the school-house, appurtenances, and the wages of the teacher; and (3.) on the government, which pays the expense of inspection, and aids the poor families by special grants.

## II. SECONDARY EDUCATION.

Secondary instruction is provided in a series of schools called the *Pedagogium*, and the *Gymnasium*.

The *Pedagogium* affords instruction of a higher grade, comprising lessons in Latin, Greek, French and German, mathematics, with the application thereof to ordinary life, natural history, natural philosophy,

technology, geography, history, religion, writing, drawing, singing, and gymnastics. The regular period of attendance on the *Pedagogium* is four years, or from ten till fourteen years of age. The classes are four, and the rise from one class to another takes place alone after a general public examination, which is held before one or more commissioners of the government, and lasts two or three days.

Besides assistant masters of different sorts, each class has its head master, and the whole establishment is governed by a rector, who is entrusted with a considerable degree of power over both masters and scholars, and who is the organ through which the will of the government concerning the school in which he presides, is communicated to all persons interested. Through his intervention, also, the wishes and opinions of those under him are laid before the higher authorities. The masters are required to hold conferences among themselves concerning the state of the school, &c., at least once a month; and on these occasions the rector presides, but the plurality of voices decides any question at issue in the conference. In the person of the rector, the duties of teacher are combined with those of administrator; but nevertheless so much of his time is not devoted to the former functions as is absolutely required from the other masters.

The *Gymnasium* receives scholars from the highest class of the *Pedagogium* and carries them farther in ancient and modern languages; a course of Hebrew is added for the theological students. Ancient geography, Greek, Roman, German antiquities, and universal grammar, also receive attention. The outlines of Astronomy, together with various branches of philosophical study, (which in Germany is subjected to infinite subdivision,) are here taught; and all the objects of instruction begun in the *Pedagogium*, are pursued as far as the knowledge and abilities of the masters and scholars will permit. Drawing, dancing, music, riding, gymnastics, swimming, &c., are here, however, objects of private study left to the option of the students.

Besides these general establishments, there exists a number of institutions for particular kinds of education, the most important of which is the Normal school or school for future masters of elementary schools before described.

### • III. SUPERIOR EDUCATION.

By an agreement with the government of Hanover, the University of Göttingen is open, with special privileges, to the students of Nassau, except in Roman Catholic Theology, for which candidates resort to Marburg, in Hesse Cassel.

### IV. INDUSTRIAL, OR TECHNICAL TRAINING.

The government has not undertaken to provide directly for industrial education, but makes money grants in aid of the operations of a Society, [called *Gewerbe-Verein*,] devoted to the promotion of the manufacturing and commercial interests of the Duchy. The following

notice of its action in this particular is taken from Twining's "*Letters on the Condition of the working classes of Nassau.*"

One of the most important steps of this Society, has been the establishing in various parts of the Duchy, of what are called *Gewerbe-schulen*, or industrial schools, consisting of—

Firstly, Evening classes, (*Apend-schulen*), held in winter time for the purpose of giving young Artizans and others an useful complement to their elementary education, in such branches as commercial reckoning and correspondence, and practical geometry.

Secondly, Sunday Classes, (*Sontag-schulen*), intended for departments of study which are not so well taught in the evening as by daylight, and held on Sundays for the benefit of young men, chiefly apprentices, whose occupations would not allow them to attend conveniently during the week. They comprise the various branches of drawing required for the industrial trades, and geometry applied to the arts of design.

According to the annual Report, read at the General Meeting of the *Gewerbe-Verein*, on the 11th of May, 1853, by the able Secretary, Dr. Casselmann, the number of Industrial Schools in activity in various parts of the Duchy, is at present twenty-five, with an aggregate number of about two thousand students.

A Modeling School has also been established at Weisbaden, and is attended at present by between thirty-five and forty students.

The Report gives 7419 florins, or about 618*l.* sterling, as the amount expended in the last financial year, for founding and maintaining the above schools, whereof about two thousand florins were furnished by the Society, and four thousand florins were covered by a government grant; the remainder was supplied by the localities.

To secure a proper degree of intelligence and practical skill in all who pursue any trade, there is a legalized system of apprenticeship, which Mr. Twining thus describes.

The would-be Artizan must be able to exhibit proof of having concluded his attendance at school, (which as I have mentioned elsewhere, is obligatory from the sixth to the fourteenth year,) by satisfactorily passing his final examination; he must also have passed his confirmation, which takes place about the same time; it is preceded for a considerable period, by strict religious instruction, and is solemnized by both Protestants and Catholics in a very impressive manner.

If a lad is quite a duice, and especially if he can not satisfactorily get through his Catechism, he may be retained under tuition another year; or if his vicious propensities are found incorrigible by ordinary means, he may be sent off to a disciplinarian school, called *Rettungs-haus*. One of these establishments was founded in 1851, near the little town of Nassau, by the Countess von Giech, and now contains about ten boys; another has just been erected near Weisbaden by a pious Evangelical Society.

If all is tolerably right, the lad receives in due form his educational certificate, and he and his friends set about looking out for the right sort of shop, and a comfortable master; but before a definite agreement is come to, German prudence steps in very appropriately, and prescribes two weeks' preliminary trial. If this turns out to mutual satisfaction, a contract is drawn up, of which the legalization is obtained with very little expense, or none at all, if the parties are poor.

For ordinary trades, such as those of the shoemaker, tailor, joiner, baker, &c., the usual term is three years, and the total sum to be paid to the master varies from thirty to sixty florins, (\$12 to \$20; ) or a term of four years is agreed upon, without payment, the work of the apprentice in the last year being expected to form an equivalent.

With respect to more difficult trades, such as those of the watchmaker, mechanic, lithographer, &c., the term is usually three or four years, with a payment of eighty to two hundred florins, (\$33 to \$40.) Some few trades, requiring little or no technical training, are exceptional with regard to payments; thus apprentices engaged in the operations of building, whitewashing, &c., not only have nothing to pay, but receive at once a daily remuneration of a few *kreuzers*.

In no case does an apprenticeship last longer than four years; serious disagree-

ments between masters and apprentices are in some measure obviated by the examination which must be undergone before an artisan can settle anywhere as master; but in all cases redress is facilitated by the practice of paying the stipulated sum by installments, so that one-third or one-half the amount stands over to the conclusion of the term. If an apprentice has just cause for complaint, he is released by the local authorities from further obligations towards his master, and his friends from further payment.

At the expiration of his term, the apprentice must furnish proof of the extent of his acquirements, by executing some appropriate piece of handiwork, in the presence of the official judges of the trade, forming a kind of jury, which, from its usefulness, deserves some attention.

Every three years the masters in each trade residing in a district, or in a group of districts if the trade is a scarce one, assemble to elect, or re-elect, three representatives for the purpose of examining the certificates, and of testing and recording the abilities of industrial candidates.

If the examiners are not satisfied with the young man's performance, he must find means of improving himself, within half-a-year, against another trial; if, on the contrary, they are well pleased, he obtains his certificate as *Gesell*, or journeyman, and sets out for his travels.

When the *Gesell* arrives at a town, he goes forthwith to the *Herberge*, or specially appointed inn of his trade, where the *Herberge Vater*, (inn father), from whom he is entitled to receive paternal attentions and advice, shows him a register, in the form of a slate, or blackboard, on which is inscribed the name of any master wanting a hand. If the register is a blank, and the *Gesell* has no cash in purse from previous savings, he may claim his *Vaticum*, or traveling money, which is either paid from the treasury of the town, or from a subscription purse of the trade, or made up by small donations which he gets at the several workshops of his calling, where he applies in succession for that purpose; in so doing, he generally makes good his claim to brotherly assistance by some token which he bears, or by mysteriously symbolical signs and passwords, analogous to those used in freemasonry.

At Frankfurt, where trade affairs are reckoned to be on a more liberal, or more antiquated footing than elsewhere, an itinerant servant of the proud company of hair-cutters receives from a special purse as much as thirty-six kreuzers, (one shilling;) but this may be accounted exceptional, and in the generality of cases, the total amount which a common journeyman obtains by legitimate means, is no more than a few pence. At all events, the sum is definitive; except in case of illness, no further sum can be claimed, and it will be well if the next morning's dawn sees our wanderer trudging contentedly onward, his knapsack on his back, with a boot sticking out at each end of it, and his faithful pipe dangling at the side of his mouth, whilst he sings some classical ditty of the brotherhood.

There was a time when the industrial vocabulary construed the word *fechten* as a justifiable kind of begging, which did not disgrace a needy journeyman, but now it is inscribed in the black-book of the police; and if a poor fellow, compelled by sheer necessity, extends an unwilling hand toward a stranger, and a *gend'arme* catches him in the act, he is not only punished with arrest, but this fact is noted down in his pass-book, and subjects him, wherever he goes, to be watched with a suspicious eye, and to increased severity in case of a repetition of the offence.

Before the journeyman can become a *master* in his art, or profession, and fix his abode as such in a place of his choice, a few important steps remain to be taken. If a native of another state, he must obtain the freedom of the one of which he wishes to become a denizen; if merely of another parish, he must still get admission to parochial rights, which are sometimes expensive: in every case, he is required to accomplish single-handed, for strict inspection by the *Prüfungs Commission*, some model piece of workmanship, sufficient to show, not merely a moderate amount of skill, as when he was a candidate for a journeymanship, but his thorough knowledge of the *arcana majora* of his calling. If he can follow up the display orally, with theoretical evidence, he is entitled to be admitted forthwith to the Honorable Company of the Masters of the Trade.

to add to the number of specimens in some measure obtained by the same means as those which have been already mentioned. The specimens of the apparatus of the Infant-Garden, however, are not only of great interest, but also of great value, as they are the only ones of the kind which have been obtained by the same means as those which have been already mentioned.

## XV. FRÖBEL'S SYSTEM OF INFANT-GARDENS.

ONE of the most interesting and instructive contributions to the London Educational Exhibition in 1854, was made by Mr. Hoffman, of Hamburgh, in specimens of the cheap and simple apparatus devised by Frederick Fröbel, to be used in his system of Infant-Garden training and instruction—which has been introduced into the principal cities of Europe. We have been waiting for the reception of the specimens which we ordered, and of copies of a Practical Guide for their use, together with some French and German publications descriptive of the methods and results of this new system of infant school, or rather, of infant-play instruction—in order to give an exposition of the subject. As our specimens and documents have not come to hand, we introduce a brief notice of Fröbel's system of Infant-Gardens from the *National Society's Monthly Paper* for November, 1855.

In the list of those who in recent times have contributed by their energies and self-devotion to raise elementary education to its present high standard of excellence, few names deserve to be mentioned with more respect and honor than that of Frederick Fröbel, the originator of the German system of Infant-Gardens. Impressed with the idea that the early training of the *mind* should be based upon principles analogous to those which best develop *bodily* health and strength, he set himself to work out a system in which the natural requirements of childhood should alone furnish the groundwork for its operations. And in carrying out those ideas, which it had taken years of anxious thought to mature, he manifested a determination of purpose, and practised a course of self-denial, equal to which the history of education can furnish but few parallel instances. In the first place, he resigned a lucrative appointment at Berlin, and with very slender resources established his first infant-school in a cottage at Keilhau, in Thuringia. During the early stages of this arduous task, he lived on potatoes, bread, and water; and, in order the more effectually to economise this humble fare, is said to have chalked out each day's allowance upon his rye-leaves.

The teaching of Fröbel commences with the earliest age at which the infant manifests the power of receiving impressions from external objects. Certain apparatus, or rather toys, are used; the expense of which is extremely moderate. The first used is a box containing six colored balls, called the "*first gift*." With these balls the child is trained to exercise his limbs and use his senses. He stretches out his hand to catch them, or presses his fingers to retain them. They excite his curiosity; he learns to distinguish their form, color, and substance; and his eyes are fully employed in watching their movements. By attaching a string to the ball, numerous exercises may be performed, all tending to call into play

some faculty of the child. Specimens of these exercises are given in a work lately published, entitled *A Practical Guide to the English Kinder Garten*, (*children's garden*); and a school conducted on Fröbel's system may be seen in operation, on any Tuesday morning, from eleven to one, at 32 Tavistock Place, (London.) This first English Infant-Garden was founded by the authors of the *Practical Guide*, M. and Madame Ronge, to whom we venture to refer those who are sufficiently interested in the subject to undertake a visit to their establishment on the day above mentioned.

From the colored balls we proceed to the "*second gift*," which is a small box containing a ball, a stick, a string, a cube, and a cylinder; the two latter perforated so as to allow the stick and string to be fixed into them. With these a variety of motions can be produced, which, however, it would be difficult to describe verbally. Here, again, the *Practical Guide* will assist the teacher; numerous pictorial illustrations being given in it of the manner in which the "*second gift*" may be used.

The "*third gift*" is a set of eight equal cubes, made to fit into a box. These eight cubes may, of course, be placed so as to form one single cube eight times as large as any one of them.

"The child is first taught to invert the box, after drawing out a small part of the lid; secondly, to draw out the lid entirely and lift up the box: he then finds the cube complete, and is allowed to pursue the dictates of his mind; he may divide it into two, four, or eight equal parts, place them upon each other, lay them side by side, count them, or arrange them in a thousand different ways, to suit his inclination. After a time he will examine them more carefully; he will see that each has the same form, number of faces, edges, corners, as the whole; he will learn to distinguish their number, size, form, position, order, and arrangement; he will learn the true meaning of up, down, here, there, this, that, these, those, above, below, under, over, upon, underneath, within, without, large, small, &c."

"In the "*fourth gift*," one large cube is divided into eight equal parts by being cut in one direction, so that the parts are parallelepipeds instead of cubes. This gift, though apparently similar to the previous one, will be found on closer observation to afford the child a greater variety of combinations than the cubes. It is remarked by Madame Ronge, that "the parts in this gift contain a greater amount of surface than the cubes, and are capable of enclosing a still greater amount of space, a far greater variety of objects may be represented—objects more lofty and spacious. An endless variety of crosses, monuments, tablets, columns, and towers may be made; illustrations of which are given in the plates. With these erections many important historical events may be associated, which a well trained teacher will ever have at command."

The "*fifth and sixth gifts*" are extensions of the third and fourth. In the third, the cube is made up of eight smaller ones, while in the fifth it is composed of twenty-seven small cubes, three of which are further divided into halves, and three into quarters. Its peculiarity consists in the increased number of parts, by which more extended operations can be carried on; and the introduction of triangular forms, by which a greater variety of buildings, articles of furniture, &c., can be constructed, and more advanced exercises in number and form given. The "*sixth gift*" stands in the same relation to the "*fourth*" as the "*fifth*" does to the "*third*," and by its aid all the exercises given under the "*fourth*" this may be carried out to a far greater extent.

One use of the cubes ought to be specially alluded to, viz.: their employment in teaching the elements of Arithmetic. Illustrations are given in the *Practical*



*Guide to the English Kinder Garten*, including exercises in the Simple Rules, Fractions, Proportion, Square Root, &c. The practical utility of these exercises with the cubes, in conveying to children correct notions of the first principles of number, cannot be too highly appreciated.

The succeeding "gifts," which, however, are not numerically described like those which have been already mentioned, consist of bundles of small sticks, soaked peas, flat sticks for plaiting; paper for folding, cutting, and plaiting; and slates, engraved in the form of a net of equal squares, for drawing. With the sticks, which represent ready-made straight lines, the child is encouraged to produce forms with which he is acquainted, such as crosses, stars, patterns for gardens, seats, gables of houses, and at length whole elevations of houses, churches, &c.; and when he has acquired dexterity in laying the sticks in different directions, for the purpose of representing these varied objects, the soft peas are given to him, that he may be able to unite the sticks more permanently together. The sticks might be joined together by clay; but the softened pea is undoubtedly a cleaner and neater material.

Time and space forbid any thing more than a mere allusion to the musical, gymnastic exercises, the intimations of natural and artificial movements, and other amusements, which form an important part of the *Kinder Garten* time-table. The brief outline which has been given can convey but a very imperfect idea of the methods which are employed by Fröbel and his followers for combining amusement with instruction.

"*The Practical Guide to the English Kinder Garten*," price 7s. 6d., can be procured through Trubner & Co., 12, Paternoster Row. The Kinder Garten Toys can be obtained at the following prices:—

	£	s.	d.	
First Gift,.....	2	6		each.
Second Gift,.....	1	6		"
Third Gift,.....	0	6		"
Fourth Gift,.....	0	6		"
Fifth Gift,.....	1	9		"
Sixth Gift,.....	1	9		"
Plaiting Sticks,.....	0	3		per dozen.
Paper Plaiting Box,.....	1	6		each.

## XVI. EDUCATIONAL INTELLIGENCE AND MISCELLANY.

SINCE the issue of the July Number of the Journal, more than one hundred Colleges in different parts of the country, and as many more Academical Institutions for Boys and Girls, as well as a large number of State Teachers, and other Educational Associations, have held their anniversary festivals. We intended to have given a summary of the "Commencement Exercises" in the leading Colleges of the country, but the illness of the editor for the last three weeks has prevented any attention being paid to the material collected for this department of the Journal.

*American Association for the Advancement of Education*, held its Sixth Annual Meeting at Detroit, commencing on the 12th and adjourning on the 15th of August. The introductory discourse was given by Hon. Henry Barnard, on the "*Magnitude of the Educational Interests of the United States*," which was followed by another address in the afternoon, on the "*Extension of the System and Agencies of Public Instruction in the several States*," and at a later period of the session, at the special request of the Association, on "*Reformatory Education*;" by Pres. Tappan, on "*John Milton, and his Educational Views*;" by Pres. White, of Wabash College, "*On the Influence of Popular Education on Religion*;" by D. Bethune Duffield, of Detroit, "*On the Duty of the State in the Education of Children and Youth*;" by Prof. I. B. Turner, of Illinois College, "*On the Incoming Age: its Educational Necessities and Means*;" by Prof. R. L. Cooke, of New Jersey, "*On the Character and Extent of the Education for which the State should make provision*;" by Prof. J. R. Boise, of the University of Michigan, on "*Athenian and American Sophists*;" by Prof. Haven, of do., "*On the Claims of Common Schools*;" by Prof. Welch, of State Normal School, "*On a higher order of Instruction than we now have*."

THE AMERICAN INSTITUTE OF INSTRUCTION, held its Twenty-Seventh Annual Meeting at Springfield, Mass., commencing on the 19th and adjourning on the 23d of August. The meeting was opened by Remarks by the President, John Kingsbury, LL. D., of Providence, "*On the Progress of Education since the formation of the Institute*;" Addresses were made by Pres. Walker, of Harvard College, "*On the Development of the School System of Massachusetts*;" by Prof. Lincoln, of Brown University, "*On the Claims of Ancient Classics*;" by Prof. Sherwin, of the Boston English High School, "*On the Claims of Science in an American System of Education*;" by John Kneeland, of the Washington High School, Roxbury, "*On Objects to be aimed at in Teaching*;" by Prof. W. Russell, "*On an extension of the Operations of the American Institute of Instruction*;" by Prof. Haven, of Amherst, "*On the Study of Mental Philosophy*;" by Hon. George S. Boutwell, "*On the Nature and Value of Learning, and its Influence on Labor*;" by Hon. Henry Barnard, "*On the Home and Parental Element in Public Education*"; and by Bishop Clarke, of R. I., "*On the Education required by the Times*." The topics presented and suggested by the lecturers, were freely discussed by a large number of members.

THE FIRST ANNUAL MEETING OF THE TEACHERS OF NORMAL SCHOOLS, WAS held after the adjournment of the American Institute at Springfield.





H. Wright South Sc.

*W. Colburn*

